Volume 161 January-June 1982

NATIONAL GEOGRAPHIC

INDEX

January-June 1982

VOLUME 161

PUBLISHED BY THE
NATIONAL GEOGRAPHIC SOCIETY
WASHINGTON, D. C.

NATIONAL GEOGRAPHIC SOCIETY

WASHINGTON, D. C.

Organized "for the increase and diffusion of geographic knowledge"

GILBERT HOVEY GROSVENOR
Editor, 1899-1954; President, 1920-1954
Chairman of the Board, 1954-1966

THE NATIONAL GEOGRAPHIC SOCIETY is chartered in Washington, D. C., in accordance with the laws of the United States, as a nonprofit scientific and educational organization. Since 1890 the Society has supported more than 2,100 explorations and research projects, adding immeasurably to man's knowledge of earth, sea, and sky. It diffuses this knowledge through its monthly journal, NATIONAL GEOGRAPHIC; its books, globes, atlases, filmstrips, and educational films; *National Geographic WORLD*, a magazine for children age 8 and older; information services; technical reports; exhibits in Explorers Hall; and television.

GILBERT M. GROSVENOR, President
OWEN R. ANDERSON, Executive Vice President
HILLEARY F. HOSKINSON, Vice President and Treasurer
WILLIAM T. BELL, FREDERICK C. GALE, LEONARD J. GRANT, JOSEPH B. HOGAN, ADRIAN L. LOFTIN, JR., LEWIS P. LOWE, RAYMOND T. McELLIGOTT, JR., Vice Presidents
EDWIN W. SNIDER, Secretary and Corporate Counsel

BOARD OF TRUSTEES

MELVIN M. PAYNE, Chairman of the Board
ROBERT E. DOYLE, Vice Chairman
LLOYD H. ELLIOTT, Vice Chairman
President, George Washington University
MELVILLE BELL GROSVENOR, Chairman Emeritus
THOMAS W. McKNEW, Advisory Chairman

OWEN R. ANDERSON
Executive Vice President, National Geographic Society

THOMAS E. BOLGER
Executive Vice President, American Telephone & Telegraph Company

FRANK BORMAN, Chairman of the Board and President, Eastern Airlines

J. CARTER BROWN, Director, National Gallery of Art

WARREN E. BURGER
Chief Justice of the United States

MICHAEL COLLINS
Vice President, Vought Corporation

GEORGE M. ELSEY, President, American Red Cross

WILBUR E. GARRETT
Editor, National Geographic

GILBERT M. GROSVENOR
President, National Geographic Society

ARTHUR B. HANSON, Attorney

CARYL P. HASKINS, Former President, Carnegie Institution of Washington

JEROME H. HOLLAND
Former U. S. Ambassador to Sweden

CARLISLE H. HUMELSINE
Chairman of the Board, The Colonial Williamsburg Foundation

MRS. LYNDON B. JOHNSON

CURTIS E. LeMAY, Former Chief of Staff, U. S. Air Force

LAURANCE S. ROCKEFELLER
Chairman, Memorial Sloan-Kettering Cancer Center

ROBERT C. SEAMANS, JR.
Henry R. Luce Professor of Environment and Public Policy, Massachusetts Institute of Technology

JAMES H. WAKELIN, JR., Former Assistant Secretary of Commerce for Science and Technology

CONRAD L. WIRTH, Former Director, National Park Service

Trustees Emeritus

CRAWFORD H. GREENEWALT
WM. McCHESNEY MARTIN, JR.
FREDERICK G. VOSBURGH
JAMES E. WEBB
LOUIS B. WRIGHT

COMMITTEE FOR RESEARCH AND EXPLORATION

MELVIN M. PAYNE, Chairman
T. DALE STEWART, Vice Chairman
EDWIN W. SNIDER, Secretary

BARRY C. BISHOP, HARM J. DE BLIJ, Professor of Geography, University of Miami, ROBERT E. DOYLE, GILBERT M. GROSVENOR, MELVILLE BELL GROSVENOR, CARYL P. HASKINS, THOMAS W. McKNEW, BETTY J. MEGGERS, Research Associate-Anthropology, Smithsonian Institution, PETER H. RAVEN, Director, Missouri Botanical Garden, CHARLES H. SOUTHWICK, Professor of Biology, University of Colorado, GEORGE E. STUART, JAMES H. WAKELIN, JR., GEORGE E. WATSON, Curator of Birds, Smithsonian Institution, FRANK C. WHITMORE, JR., Research Geologist, U. S. Geological Survey, CONRAD L. WIRTH, LOUIS B. WRIGHT, and PAUL A. ZAHL

ASSISTANT VICE PRESIDENTS: James P. Kelly, Ward S. Phelps, Cletis Pride. **ASSISTANT TREASURER:** Alfred J. Hayre. **ASSISTANT SECRETARY:** Earl Corliss, Jr. **ASSISTANTS TO THE PRESIDENT:** Joyce W. Graves, Thomas E. Kulikosky, Richard E. Pearson

ADMINISTRATIVE STAFF: *Accounting:* Dorothy L. Dameron, Jay H. Givans, Laura L. Leight, William G. McGhee, George E. Newstedt, David H. Peters. *Administration:* D. Evelyn Carnahan, Robert V. Koenig, Zbigniew Jan Lutyk, Marta M. Marschalko, Karen S. Marsh, Myra A. McLellan, Jennifer Moseley, Ross L. Mulford, Shirley Neff, Jimmie D. Pridemore, Joyce S. Sanford, Janet C. Soper, Frank M. Twigger. *Computer:* James G. Schmelzer, William L. Chewning, Ronald C. Kline, Richard A. Mechler, Harold E. Smith. *Educational Services:* Wendy G. Rogers, Dean R. Gage, Carl W. Harmon, Jr. *Employee Benefits:* Howard R. Hudson. *Explorers Hall:* Peter Purpura. *Membership Services:* Margaret L. Bassford, Robert C. Dove, Erma T. Goetzinger, William T. McDonnell, Paul B. Tylor, Dorothy M. Wagner, Marguerite M. Wise, Peter F. Woods. *Personnel:* Thomas L. Hartman, M.D., Robert E. Howell, Glenn G. Pepperman, Shirley N. Wilson. *Printing:* Joe M. Barlett, Frank S. Oliverio, Margaret A. Slifer, Hans H. Wegner. *Promotion:* Charles T. Kneeland, Robert J. Warfel, Eileen W. Bowering, James R. Dimond, Jr., Robert L. Feige, Joseph S. Fowler, Thomas M. Kent, Mary A. Mattingly, F. William Rath, Towne Windom. *Purchasing:* Robert G. Corey, Thomas L. Fletcher, Sheila H. Immel

ADVERTISING: *Director:* George E. Moffat, 1251 Avenue of the Americas, New York 10020. *Asst. to Dir.:* Eileen K. Ayvazian. *Assoc. Sales Director:* George W. Kellner. *Managers—East:* Bart W. McDonnell. *Midwest:* Robert R. Henn, Chicago. *San Francisco:* Cecil H. London. *Los Angeles:* Richard H. Lehman. *Detroit:* Jerry Lynch. *Europe:* Michel A. Boutin, 90 Ave. des Champs Élysées, Paris. *Business Manager:* Peter W. Michaels. *Production:* G. Sarita Lapham. *Marketing/Research:* Alex MacRae. *Promotion:* J. Robert Kelly. *Administration:* Blanche Coffey.

COPYRIGHT © 1982 National Geographic Society, 17th and M Sts. N.W., Washington, D. C. 20036.

MELVIN M. PAYNE *Chairman of the Board*
MELVILLE BELL GROSVENOR *Editor Emeritus*

NATIONAL GEOGRAPHIC MAGAZINE

GILBERT M. GROSVENOR *President*
WILBUR E. GARRETT *Editor*
JOSEPH JUDGE *Associate Editor*

SENIOR ASSISTANT EDITORS

James Cerruti, *Contract Writers* John B. Garver, Jr., *Cartography*
Robert E. Gilka, *Photography* William Graves, *Expeditions*
Robert P. Jordan, *Special Projects* H. Edward Kim, *Layout*
Edward J. Linehan, *Manuscripts* Samuel W. Matthews, *Production*
O. Louis Mazzatenta, *Control Center* Howard E. Paine, *Art*
Carolyn Bennett Patterson, *Legends* Thomas R. Smith, *Illustrations*
Mary G. Smith, *Research Grant Projects* Kenneth F. Weaver, *Science*
Ann K. Wendt, *Research*

TEXT

ASSISTANT EDITORS: Rowe Findley, Bart McDowell, Elizabeth A. Moize, Merle Severy
SENIOR WRITERS: Thomas J. Abercrombie, David S. Boyer, Thomas Y. Canby, Mike Edwards, William S. Ellis, Rick Gore, Noel Grove, John J. Putman, Peter T. White
SENIOR EDITORIAL STAFF: Harvey Arden, Robert Booth, Kent Britt, John L. Eliot, Boyd Gibbons, Alice J. Hall, Bryan Hodgson, David Jeffery, Michael E. Long, Ethel A. Starbird, Priit J. Vesilind, Gordon Young
EDITORIAL STAFF: Allen A. Boraiko, Larry Kohl, Douglas Lee, John L. McIntosh, Cathy Newman, Cliff Tarpy
RESEARCH: Frances H. Myers (Associate Chief); *Researcher-Editors:* Susan L. Anderson, Judith Brown, Lesley B. Rogers, Michaeline A. Sweeney. *Researchers:* Carolyn H. Anderson, Rebecca Beall, Polly M. Brown, Julia G. Grover, Ann B. Henry, Jan Holderness, Patricia B. Kellogg, Kathy B. Maher, Barbara W. McConnell, Jean B. McConville, Jeanne E. Peters, Frances W. Shaffer. *Geographic Information:* Bette Joan Goss. *Legends:* Abigail A. Tipton

ILLUSTRATIONS

PHOTOGRAPHERS: Dean Conger, Joseph J. Scherschel (Assistant Directors); James L. Amos, Joseph H. Bailey, James P. Blair, Victor R. Boswell, Jr., Jodi Cobb, Bruce Dale, Gordon W. Gahan, David Alan Harvey, Otis Imboden, Emory Kristof, Joseph D. Lavenburg, Bianca Lavies, Bates Littlehales, Robert W. Madden, George F. Mobley, Robert S. Oakes, Steve Raymer, Robert F. Sisson *(Natural Science)*, James L. Stanfield, Volkmar Wentzel *(Archivist)*. *Administration:* Claude E. Petrone, Susan A. Smith
ILLUSTRATIONS EDITORS: W. Allan Royce (Assistant Director); David L. Arnold, Taylor Gregg, Declan Haun, Bruce A. McElfresh, Charlene Murphy, Robert S. Patton, Elie S. Rogers, Jon Schneeberger, Susan Welchman
LAYOUT: Constance H. Phelps
ART: William N. Palmstrom, J. Robert Teringo (Associate Directors); Walter Q. Crowe, John D. Garst, Jr. (Asst. Directors); Elie Sabban (Production). *Artists:* Lisa Biganzoli, William H. Bond, John W. Lothers, Ned M. Seidler. *Map Editors:* John T. Blozis, Gus Platis. *Research:* Virginia L. Baza, Harold A. Hanson (Supervisors); Ross M. Emerson, Margaret Deane Gray, Marguerite B. Hunsiker, Dorothy A. Nicholson. *Map Artists:* Isaac Ortiz, Leo B. Zebarth (Supervisors); Iskandar Baday, Peter J. Balch, Snejinka Stefanoff, Alfred L. Zebarth
DESIGN: Charles C. Uhl, Betty A. Clayman, Robert E. Pullman
ENGRAVING AND PRINTING: William W. Smith (Director); James R. Whitney (Associate Director); Bill M. Aldridge, John T. Dunn

CARTOGRAPHY

Richard J. Darley (Senior Associate Chief); John F. Shupe (Associate Chief); Ted Dachtera, Richard K. Rogers (Asst. Chiefs); John F. Dorr (Art Director); Margery K. Barkdull, Karen F. Carrick, Charles F. Case, Henri A. Delanghe, Russel G. Fritz, Martin J. Golden, Charles W. Gotthardt, Jr., Thomas L. Gray, Catherine M. Hart, Harry D. Kauhane, Mary C. Latham, Mary Anne McAleer, Charles L. Miller, Roland R. Nichols, Douglas A. Strobel, Tibor G. Toth, Thomas A. Wall, Thomas A. Walsh, Susan Young

EDITORIAL SERVICES

ADMINISTRATION: M. Jean Vile (Asst. to the Editor), Elaine Rice Ames, Marie L. Barnes, G. Merrill Clift, Neva M. Collins, Lilian Davidson, Virginia H. Finnegan, Eleanor W. Hahne, Mary F. Klemann, Lucille L. McInerney, Patricia M. Oakes. *Picture Requests:* Barbara A. Shattuck. *Correspondence:* Carolyn F. Clewell, Gwendolyn C. Blackman. *Indexes:* Jolene M. Blozis. *Travel:* Virginia A. Bachant
LIBRARIES: *Publications:* Virginia Carter Hills (Librarian); Patricia Murphy Smith, Susan M. Fifer, Carolyn Locke, Louise A. Robinson, Marta Strada. *Illustrations:* L. Fern Dame, Carolyn J. Harrison, M. Scott Bolden. *Records:* Lorie Northrop, Mary Anne McMillen, Marguerite S. Northwood, Mennen M. Smith. *Films:* Betty G. Kotcher
NEWS SERVICE: Paul Sampson (Chief); Donald J. Frederick, Ellen E. Kohlberg, Barbara S. Moffet, William J. O'Neill. *Radio:* Robert C. Radcliffe
PHOTOGRAPHIC LABORATORIES AND TYPESETTING: Carl M. Shrader (Chief); Milton A. Ford (Associate Chief); Lawrence F. Ludwig (Assistant Chief); Herbert Altemus, Jr., Billy R. Barnett, Richard A. Bredeck, David H. Chisman, Ellwood M. Kohler, Jr., Geoffrey T. McConnell, William S. Petrini, Bernard G. Quarrick, Joan S. Simms, James H. Trott, Alfred M. Yee

RELATED EDUCATIONAL SERVICES OF THE SOCIETY

ROBERT L. BREEDEN *Vice President*

SENIOR ASSISTANT EDITORS: Donald J. Crump, *Special Publications and School Services;* Charles O. Hyman, *Book Service*
BOOK SERVICE: Kenneth C. Danforth (Assistant Director); Ross Bennett, Mary H. Dickinson, Karen F. Edwards, Robert C. Firestone, Anne Dirkes Kobor, J. Edward Lanouette, Carol Bittig Lutyk, Linda B. Meyerriecks, David F. Robinson, Shirley Scott, David M. Seager, Margaret Sedeen, George E. Stuart, Anne E. Withers
SPECIAL PUBLICATIONS AND SCHOOL SERVICES: Philip B. Silcott (Associate Chief); William L. Allen, Jody Bolt, Toni Eugene, Seymour L. Fishbein, Ron Fisher, Patricia F. Frakes, William R. Gray, Barbara Grazzini, Sallie M. Greenwood, Mary Ann Harrell, Suzanne J. Jacobson, Bonnie S. Lawrence, Christine E. Lee, Tee Loftin, Tom Melham, Robert Messer, H. Robert Morrison, Raja D. Murshed, Thomas J. O'Neill, Thomas B. Powell III, Cynthia Ramsay, Kathleen F. Teter, Jennifer C. Urquhart, George V. White, Merrill Windsor. *National Geographic WORLD:* Ralph Gray (Editor); Pat Holland, Ellen Joan Hurst, Margaret McKelway, Pat Robbins, Eleanor Shannahan, Veronica Smith, Ursula Perrin Vosseler. *Educational Media:* George Peterson (Editor); Jimmie Abercrombie, James B. Caffrey, Margery G. Dunn, Jacqueline Geschickter, Jane R. McCauley, Judith E. Rinard
TELEVISION AND FILMS: Dennis B. Kane (Chief); Sidney Platt (Manager, Educational Films); Donald M. Cooper, Anne B. K. Krumbhaar, Yeorgos N. Lampathakis, Louise C. Millikan, Marjorie M. Moomey, Patricia F. Northrop, Nola L. Shrewsberry, Carl E. Ziebe. **AUDIOVISUAL:** Joanne M. Hess (Chief); Jon H. Larimore (Technical Director); Ronald S. Altemus, Robert G. Fleegal, Paul Gorski, Mary W. McKinney, Gerald L. Wiley

Contents

Page

JANUARY 1982

EDITOR'S PAGE 1

TWO BERLINS—A GENERATION APART 2
By Priit J. Vesilind, with photographs by Cotton Coulson

THE WALL 4

EAST BERLIN 14

WEST BERLIN 34

NEW CLUES TO AN OLD MYSTERY (Virginia's Wolstenholme Towne) 53
By Ivor Noël Hume, with photographs by Ira Block and paintings by Richard Schlecht

THE AMAZING FROG-EATING BAT 78
Article and photographs by Merlin D. Tuttle

TAIWAN CONFRONTS A NEW ERA 93
By Noel Grove, with photographs by John Chao

THE THREATENED WAYS OF KENYA'S POKOT PEOPLE 120
By Elizabeth L. Meyerhoff, with photographs by Murray Roberts

FEBRUARY 1982

EDITOR'S PAGE 141

NAPOLEON 142
By John J. Putman, with photographs by Gordon W. Gahan

EGYPT'S DESERT OF PROMISE 190
By Farouk El-Baz, with photographs by Georg Gerster

HUMMINGBIRDS: THE NECTAR CONNECTION 223
By Paul W. Ewald, with photographs by Robert A. Tyrrell

TREASURE FROM THE GHOST GALLEON: *SANTA MARGARITA* 228
By Eugene Lyon, with photographs by Don Kincaid

NOMADS OF CHINA'S WEST 244
By Galen Rowell, with photographs by the author and Harold A. Knutson

STRANGE WORLD OF PALAU'S SALT LAKES 264
By William M. Hamner, with photographs by David Doubilet

MARCH 1982

EDITOR'S PAGE 283

THE TWO SOULS OF PERU 284
By Harvey Arden, with photographs by William Albert Allard
Double supplement included—*Indians of South America* and *Archaeology of South America*

GOAL AT THE END OF THE TRAIL: SANTA FE 323
By William S. Ellis, with photographs by Gordon W. Gahan and Otis Imboden

SUDAN: ARAB-AFRICAN GIANT 346
Article and photographs by Robert Caputo

HENRY HUDSON'S CHANGING BAY 380
By Bill Richards, with photographs by David Hiser

QUEBEC'S NORTHERN DYNAMO 406
Text by Larry Kohl, with photographs by Ottmar Bierwagen

Page

APRIL 1982

EDITOR'S PAGE 419

THE FACE AND FAITH OF POLAND, A Special Supplement
Essay by Czesław Miłosz, with text by Peter Miller and photographs by Bruno Barbey (Magnum)

ETERNAL SINAI 420
By Harvey Arden, with photographs by David Doubilet and Kevin Fleming

EGYPTIAN SECTOR 430
Photographs by Kevin Fleming

ISRAELI SECTOR 444
Photographs by David Doubilet

NEW LIGHT ON THE SINGING WHALES 463
A photographic portfolio by Flip Nicklin, with an introduction by Roger Payne

THE CIVILIZING SEINE 478
By Charles McCarry, with photographs by David L. Arnold

FIRST ACROSS THE PACIFIC: THE FLIGHT OF *DOUBLE EAGLE V* 513
By Ben L. Abruzzo

HOME TO THE HEART OF KENTUCKY 522
By Nadine Brewer, with photographs by William Strode

MAY 1982

EDITOR'S PAGE 547

THE TEMPLES OF ANGKOR 548

WILL THEY SURVIVE? 548
Introduction by Wilbur E. Garrett, Editor

ANCIENT GLORY IN STONE 552
By Peter T. White, with photographs by Wilbur E. Garrett

KAMPUCHEA WAKENS FROM A NIGHTMARE 590
By Peter T. White, with photographs by David Alan Harvey

WESTERN GREBES: THE BIRDS THAT WALK ON WATER 624
Article and photographs by Gary L. Nuechterlein

PERTH—FAIR WINDS AND FULL SAILS 638
By Thomas J. Abercrombie, with photographs by Cary Wolinsky (Stock, Boston)

THE INCREDIBLE POTATO 668
By Robert E. Rhoades, with photographs by Martin Rogers

JUNE 1982

EDITOR'S PAGE 695

PRESERVING A MOUNTAIN HERITAGE 696
By Sir Edmund Hillary

PARK AT THE TOP OF THE WORLD 704
By Rick Ridgeway, with photographs by Nicholas deVore III

TOLEDO—EL GRECO'S SPAIN LIVES ON 726
By Louise E. Levathes, with photographs by James P. Blair

THE GENIUS OF EL GRECO 736
By J. Carter Brown

NAMIBIA: NEARLY A NATION? 755
By Bryan Hodgson, with photographs by Jim Brandenburg

A PARADISE CALLED THE PALOUSE 798
By Barbara Austin, with photographs by Phil Schofield

THE ASTONISHING ARMADILLO 820
By Eleanor E. Storrs, with photographs by Bianca Lavies

Index

VOLUME 161 JANUARY-JUNE 1982

January	pp.	1-140	April	pp.	419-546
February	pp.	141-282	May	pp.	547-694
March	pp.	283-418	June	pp.	695-830

Titles and illustrations in bold face

A

Abbey: St. Wandrille, France 510
Abell, Sam 547
Abercrombie, Thomas J.: ***Perth—Fair Winds and Full Sails.*** May, 638-667
Aboriginals: ***Perth—Fair Winds and Full Sails.*** By Thomas J. Abercrombie. May, 638-667
Abruzzo, Ben L. **516, 520;** ***First Across the Pacific: The Flight of*** **Double Eagle V.** Apr., 513-521
Abruzzo, Benny **520**
Abruzzo, Pat **520**
Abu Rudeis oil field, Sinai Peninsula, Egypt 428, 430, **434, 435,** 448, 449
Across the Pacific by Balloon *(Double Eagle V).* By Ben L. Abruzzo. Apr., 513-521
Adobe construction: Santa Fe, N. Mex. 324, 326, 340
Adok (village), Sudan **350-351**
Adongo (dance): Pokot people **128-129**
"Adoration of the Shepherds" (El Greco) 745
Africa *see* Egypt; Kenya; Namibia; Sudan
Afrikaans (language): Namibia 765, 768, 775, 788
Agriculture: African tribal farming 120, 123, 125, **125,** 126, 130, Namibia 760, 768, 772-773, 780, 782, 788; Arab plans for Sudan 359, 376; Contour farming **804,** 814, **816-817, 819;** Desert farming 191, 198-199, 200-201, **203,** 207, 208, 220, **445, 450-453,** 456; Land redistribution 101, 309; Largest irrigated farm area 375-376; Research *see* Potatoes; Terraced fields **684-685, 710-711;** Volcanic ash effect 801, 802, **806-807;** *see also* Family farms; Farming; Rice cultivation; Wheat
Ahmed Hamdi Tunnel, Suez-Sinai, Egypt 438, **441**
Ain Shams University, Cairo, Egypt: Desert research 199
Air bases, dismantled: Sinai Peninsula, Egypt 437, **457**
Aircraft carriers: Suez Canal, Egypt **440-441**
Ajaccio, Corsica (island), France 150, 152; Birthplace of Napoleon **153**
Akaralak, Matthew 392, **398, 399**
Al-Ateeqi, Abdulrahman **356**
Albarracín, Spain 170; Townsmen **172-173**
Alcántara Bridge, Toledo, Spain 729, **737**
Alembic: Martin's Hundred (plantation), Va. 53, **57**
Alesia, Gaul: Caesar's siege 481, 485
Alexanderplatz, East Berlin **18-19**
Alfalfa field, near Palouse Falls, Wash. **806-807**
Alfonso VI, King (León and Castile) 728, 729
Alfonso X (the Wise), King (León and Castile) 745
Algae: Palau Island lakes 271, 273, **273,** 276
Allard, William Albert, photographer: ***The Two Souls of Peru.*** Mar., 284-321
Alma oil field, Sinai Peninsula, Egypt 434, 448
Almond confections: Toledo, Spain 745, 748, **749**
Alps (mountains), Europe **154-155;** Napoleon's crossing **155,** 157
Ama Dablam (peak), Nepal **703,** 720
The Amazing Frog-Eating Bat. By Merlin D. Tuttle. Jan., 78-91
America, U.S.S.: Suez Canal transit **440-441**
American Museum of Natural History: Frank M. Chapman Memorial Fund: Study grant: Western grebes 626
Amethyst mine: Namibia 784
Amr ibn-al-As 428
Amru-ben-Yusef 752-753
Anastylosis: Angkor, Kampuchea 567, 570
Ancestor spirits: Pokot people 120; Sudan 367; Taiwan **108-109,** 109
Ancient Glory in Stone (Angkor). By Peter T. White. May, 552-589
Andes (mountains), South America: *Indians of South America; Archaeology of South America.* Mar. supplement; Potatoes 670, **670-671,** 672, **672-675,** 676, 693, 694; ***The Two Souls of Peru.*** By Harvey Arden. Mar., 284-321
Andria, Duchess of: Country retreat 752
Andriashek, Dennis 384, 387
Angel, Lawrence 73
Angkor, Kampuchea: ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Capital, historical 552, 559-560
Hydraulic system 552, 559, **559-562,** 561, 567, 571, 574, 581
Maps 559-562, 567
Name meaning 552, 559-560, 566, 586
Restoration 550-551, 552, 555, 564, 566, 567, 568, 570, 577, 581, 589; Lack of resources 570-571, 585; Techniques 557, 564, 566, 567, **574,** 585
Rice cultivation 552, 559, 567, 571
Statues **586-587;** Smuggling 552, 577, 585; Vandalism **553, 570,** 571, **576-577,** 584, **584-585,** 585
Temples: Construction 554-555, 558, 559, 561, flaws 560, 564, 566-567, **574, 578, 579;** Dedication, changes in 554-555, 566, 583, 586-587; Diagram of layout **559-562;** Paintings of **559-562;** *see also* Restoration, *above*
Wooden structures 559, 572
Angkor Conservancy 584; History 570; Restoration techniques 566, 567, 570, 571, 579
Angkor Wat, Kampuchea 141, 599; ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Aerial views **554-555, 556-558**
Bas-reliefs 556, 557, 563-565, **563-565, 568-569,** 570, **588,** 589; Damage 548, **548,** 550, 564, 566, 570, 581, 584; Restoration 557, 564, 566, 567
Buddhist shrine 555, 574, 589
Builder 563
Entrances 548, **548,** 558
Hindu mythology depiction 548, **548,** 554, **554-555,** 555, 556, 557, **560-562,** 561, 563-565, **563-565,** 566, 567
Name meaning 566
National symbol 551
Outer gallery: Size 556, 566
Restoration 557, 566, 567, 570; Drains 555, 567
Towers **550-551, 560-562,** 561
Angola: Cuban troops 764; Marxists 780; Namibian refugees 775; Refugees in Namibia 780; South African raids 755, 762, 764; SWAPO cooperation 761, 762, 780
Animal behavior *see* Armadillos; Bats; Frogs; Hummingbirds; Humpback whales; Western grebes
Animal sacrifice: Pokot people 120, 131
Animals: Communication *see* Humpback whales *and* Western

grebes; Endangered and threatened 392, 399; Medical research 655, 663, 666, 820, 824, 825, 827, **827,** 828, 830; Monitoring of 387, **395,** 464, 465, 630, **630,** 631; Rare animals 783; *see also* Wildlife
Ankara, Turkey: Coffin carpenter **59**
Anna's hummingbirds: ***Hummingbirds: The Nectar Connection.*** By Paul W. Ewald. Feb., 223-227
Antelopes: Gemsboks **777, 796**
Anthiases (fish) **460**
Antiphilus of Alexandria: Lost masterpiece of 739
Anyemaqen (peak), Qinghai Province, People's Republic of China: ***Nomads of China's West.*** By Galen Rowell. Feb., 244-263
Aoki, Rocky 513, **516, 520**
Apartheid: Namibia 763, 765, 766
Appaloosa horses 801, 806, **816-817,** 818
Apsaras (mythical dancers): Angkor, Kampuchea: Bas-reliefs 550, **563-565,** 564, **588;** Damage 548, **548,** 550, 589, **589;** Number of 557, 589
Aqaba, Gulf of 428, 459; Settlements along **450-451**
Arab influence: Spain *see* Moors
Arab-Israeli wars 438 *see also* Six-Day war; Yom Kippur war
Arandis, Namibia 788
Aranos, Namibia: Coal 796
Archaeological loss to vandalism and theft: Kampuchea 548, 550, 551, 570, 577, 581, 584-585, 589; Peru 283
Archaeology: Egypt **218-219;** *Indians of South America; Archaeology of South America.* Mar. supplement; Namibia 784; ***New Clues to an Old Mystery*** (Virginia's Wolstenholme Towne). By Ivor Noël Hume. Jan., 53-77; Peru 283, 293, 298, 299, 307, 310; ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Archaeology, underwater: ***Treasure From the Ghost Galleon:*** **Santa Margarita.** By Eugene Lyon. Feb., 228-243
Architecture: Hindu and Buddhist: ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589; Mudejar 735, 745
Archive of the Indies, Seville, Spain 232; Salvage records 236
Arctic fox: Fur trade 390, 402, fur jacket **390,** trap setting **402, 403**
Arctic Sewing Center, Churchill, Canada **390**
Arden, Harvey: ***Eternal Sinai.*** Apr., 420-461; ***The Two Souls of Peru.*** Mar., 284-321
Arfe, Enrique de: Monstrance 729, 730, **746**
Armadillos: ***The Astonishing Armadillo.*** By Eleanor E. Storrs. June, 820-830
Agriculture, impact on 823, 824
Anatomy 822; Carapace 820, 822, **823,** 825; Scent glands 824; Tongue 820, **824**
Breeding and raising in captivity 820, 824-825
Diet 823, 824-825
Jump reflex 820, **821;** Hit by cars 820
Leprosy: Development of disease 830; Inoculation experiments 828, 830; Natural susceptibility 820, 827, 828, 830; Source of bacilli 827, 828, 830
Lifespan 820
Map of range 827
Meat 822-823, 825
Research use 820, 824, 825, 827, **827,** 828, 830
Arms and armor: France 490; 17th-century **57,** 62, **64-65, 66,** 67; Spain 734
Arnold, David L., photographer: ***The Civilizing Seine.*** Apr., 478-511
Aroostook County, Maine: Potatoes: Festival 687, queen **692**
Arsenals: Fontainebleau, France 490; Graz, Austria **64-65, 66,** 67
Art: Kampuchea: ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Art: Peru: Drug-smuggling medium 312, **312;** Potato-shaped jug **674;** Theft 283, 298, 303
Art, native American: Santa Fe, N. Mex. 336, **340-341, 342, 343, 345**
Art dealers: New York 283; Santa Fe, N. Mex. **325,** 331-333, **345**
Art market, illicit 283, 552, 577, 584
Artists: ***Goal at the End of the Trail: Santa Fe.*** By William S. Ellis. Mar., 323-345; Tapestry weaver **800**; *see also* El Greco
Artola, Miguel 171
Asia *see* China, People's Republic of; Japan; Kampuchea; Nepal; Philippines; Sinai Peninsula; Taiwan
Aspens: New Mexico **338-339,** 344
Assassination: Anwar Sadat 356, 357, 430, 452, 454-455
Assassination attempts: Pope John Paul II Apr. special supplement
The Astonishing Armadillo. By Eleanor E. Storrs. June, 820-830
Atayals (tribe) 112, **112-113**
Athletes, world-class: Australia 651; East Germany **22, 23,** 30, 32-33
Atlantic Ocean: First balloon flight 513; Humpback whales 465
Atocha (galleon): ***Treasure From the Ghost Galleon:*** **Santa Margarita.** By Eugene Lyon. Feb., 228-243
Attila the Hun: Invasion of Gaul 485, 491
Augsburg, Germany: Textile seal **59**
Aurelio Restaurant, Toledo, Spain **732-733**
Aurora Borealis 384, **405**
Auschwitz, Poland *see* Oświęcim-Brzezinka
Austerlitz, Battle of (1805) 149, 162; Reenactment **166-167**
Austin, Barbara: ***A Paradise Called the Palouse.*** June, 798-819
Australia *see* Perth
Australian Rules football 655, 659
Australian Wool Corporation, Perth, Australia: Computerized sheepshearer **646-647,** 651
Austria: Arsenal museum, Graz **64-65, 66,** 67; Napoleonic wars 149, 155, 156, 162, 163, 165, 167
Automobile, low-rider **335**
Ayacucho, Peru **310-311;** Archbishop of 306; Earthquake (1981) 303, 304-306; Religious center 304, 305, 306, processions **304-305,** 305
Aymara Indians: Peru 292, 310, 312, **318-319,** language 293, 312
Ayuntamiento, Plaza del, Toledo, Spain 733, 734, **746-747**
Aztecs: Armadillo meat bartered for cocoa beans 823

B

BMW Motorrad plant, West Berlin: Motorcycle assembly **43**
Baart, Jan **76,** 77
Bacteria: Palau Islands lakes **274,** 276, 282
Baffin Island, Canada 394, 402
Bagnold, Ralph A.: Western Desert exploration 199, 201, 216
Bahariya Oasis, Egypt 198, 202; Sand dune research 209-210
Baker Lake (Inuit community), Canada 394, **396-397,** 402, 403
Balat, Egypt: Archaeological finds near **219**
Bald eagle 695
Ball Hollow Hill, Ky. 528-529
Ballet dancers: Kampuchea 549, 589, **595;** Moscow, Idano 807, 814, **815;** Perth, Australia **657**
Balloons: *Double Eagle II* 513; ***First Across the Pacific: The Flight of*** **Double Eagle V.** By Ben L. Abruzzo. Apr., 513-521
Bangkok, Thailand: Dance 589
Banksia **649**
Banteay Kdei, Angkor, Kampuchea 571; Gallery **575**
Bantu (language): Namibia 763
Baphuon (temple), Angkor, Kampuchea 566; Restoration 567
Baptist faith: Kentucky 531, 544
Bar-Lev Line assault (1973): Sinai Peninsula 440, 444, 448
Baray: Angkor, Kampuchea 559, **559-560, 561-562,** 567, 571, 574, 581
Barbey, Bruno 419; photographer:

The Face and Faith of Poland. Apr. special supplement
Bardawil, Lake, Sinai Peninsula, Egypt: Exodus theory 447
Barge society, Europe: ***The Civilizing Seine.*** By Charles McCarry. Apr., 478-511
Barges: France: Canal-river network 484-485, 496, 504; Depots 504; Dredging 504, 506; Freight 496, **497,** 503, 504; Navigation 506; Traffic rules 506
Barlow, Hans 77
Barren Grounds, Canada 381, 389, 392, 400, 403; Uranium discovery 400, 402
Barro Colorado Island, Panama: ***The Amazing Frog-Eating Bat.*** By Merlin D. Tuttle. Jan., 78-91
Bas-reliefs: Angkor, Kampuchea 556, 557, 560, 562, 563-565, **563-565, 568-569,** 570, **580, 588,** 589; Damage 548, **548,** 550, 564, 566, 570, 581, 584, 589, **589;** Restoration 557, 564, 566, 567
Bastaards: Namibia 762
Batavia (Dutch East Indiaman): Stoneware bottle **57**
Bathurst Point lighthouse, Rottnest Island, Australia 663
Bats: ***The Amazing Frog-Eating Bat.*** By Merlin D. Tuttle. Jan., 78-91
Battambang, Kampuchea 594, 606, 622; Mining 605; Railroad 592
Battle of the Nations: Leipzig (1813) 149, 179
Bawiti, Egypt: Date-packaging factory 198, **207;** Olive press **206**
Baxter, William E. 537
Bayon (temple), Angkor, Kampuchea 560, **560, 561,** 566, 571, 582-583, **582-583,** 584; Bas-reliefs 581, damage **589;** Buddha images 566; Layout, significance of 582
Beadwork: Pokot people 122, 126, **126, 127**
Bearskin, Sebastian **417**
Beauharnais, Eugène de **146,** 153, 161
Beauharnais, Hortense de **144,** 153, 168
Beauharnais, Joséphine de *see* Joséphine, Empress (France)
Beauty queens: Aroostook County, Maine **692;** Colfax, Wash. **814**
Beaver: Habitat destroyed 416
Bedouin: Egypt 208, 211; ***Eternal Sinai.*** By Harvey Arden. Apr., 420-461
Beecroft, Barry 655
Beer: Namibia 768; Nepalese chang 716, 719, 724; Pokot 122, 126, 130-131; Sudanese *marissa* 367, 368; Toledo, Spain **732-733**
Beethoven, Ludwig van: Portrait **656**
Begin, Menachem: Camp David accords 428, 444; Israeli zealots' defiance of 430, 457, 459; Retirement house 456
Belau, Republic of: ***Strange World of Palau's Salt Lakes.*** By William M. Hamner. Feb., 264-282
Belaúnde Terry, Fernando 289-290, **290,** 291, 293
Bell, Randy **327**
Bell Museum of Natural History, University of Minnesota: Study grant: Western grebes 630
Beltsville, Md.: U. S. Agricultural Research Center: Potato development 681, 687
Beluga whales 384, **401;** Hunted by Inuit 385, 397, 401
The bends: Protection from 515
Benedict, Calvert P. 37, 50
Benguela Current, Atlantic Ocean 764, 788, 793; Overfishing 764, 793, 796
Benihana restaurant chain: Owner 513, **516**
Benjamin, Murray 818
Berezina, River, U.S.S.R.: Napoleon's crossing 174, **176-177**
Berlin, East: ***Two Berlins—A Generation Apart.*** By Priit J. Vesilind. Jan., 2-51
  Citizens: Public opinion 21, 28-30, 33, concerning West 4, 9, 13, 24
  Comic Opera **21,** 31
  Communism 4, 11, 19, 21, 24-25, 30, 32-33; Identity pamphlets 29; Party members **14-15,** 33, leader *see* Honecker, Erich
  Consumer goods 19, 25, 28
  Currency, Western 12-13, 25, 28
  Embassies, Western 9
  Escapes 11-12; Selling of 12
  Facts and figures 9
  German State Opera 17, 26, 31
  Housing: Damaged 25, 26, **26-27;** Projects **16,** goals 17, 26
  Land use 17, 20
  Living standards 17, 19, 20, 21, 25
  Map 8-9
  May Day celebration **14-15,** 32-33
  Mayor *see* Krack, Erhard
  Police 28-29; Draft 28-29
  Population 17
  Religion 21, 24
  Sports **22,** 23, **23,** 28; Facilities **23,** 24, **28-29,** 30
  Troops 11, 36; Goose-stepping **2-3,** 20, cover
  Waterways 17, 30; Controls 9
  West Berlin, pensioners' access to 32
  Youth **14-15, 22,** 23, **23,** 24-25, **28-29,** 33
Berlin, West: ***Two Berlins—A Generation Apart.*** By Priit J. Vesilind. Jan., 2-51
  Allied troops 8, 9, 11, 17, 36, **37,** 50
  Demonstrations 38, **38-39,** 42, 46
  East Berlin access 11, 12-13, 30
  Economy 8, 36, 37, 50
  Facts and figures 8
  Flag **8**
  Germany, Federal Republic of: Access to 8, treaty concerning 11; Funds 8, 36
  Housing **40-41;** Shortage 42; Squatters **39,** 42
  Labor 37, **42;** Guest workers **6-7,** 36, 38, 40-42, 43, **43**
  Land use: Farming **12-13,** 41, **44;** Recreational 37, **44-45,** 45
  Map 8-9
  Mayor *see* von Weizsäcker, Richard
  Residents: Age groups 36; Draft-exempt status 36, 38; Public opinion 17, 49-50
  Restoration 17, 46, 48
  Soviet patrols 9
Berlin Airlift (1948-49) 8
Berlin Wall 1, 4, **4-7, 10-13,** 11, **37,** 48, 50; Map 8-9
Berliner Ensemble (theater), East Berlin 21, 31
Bermejo, José **730**
Bernauer Street, West Berlin **10-11**
Berndt, R. M. **663**
Bible: Sinai Peninsula references 426-427, 437, 442, 444, 447, 449
Bicorne (hat), owned by Napoleon 490, 491
Bicycle taxis: Kampuchea **608-609,** 614
Bicycles: Rottnest Island, Australia **655,** 663
Bierwagen, Ottmar, photographer: ***Quebec's Northern Dynamo.*** Mar., 406-418
Billy-lès-Chanceaux, France **482-483**
Binford, Chapman H. 828
Bingham, Hiram 299, 307
Bir Kiseiba, Egypt 211; Archaeological finds near **218**
Bird migration: Swimming murres 399; Western grebes 629
Bird-watching: Hudson Bay region, Canada 384
Birds: Namibia **756-757,** 768, 779, 793; Nepal **716,** 719, 722; Seabird colony, Digges Islands, Canada 396, 397, 399; *see also* Bald eagle; Hummingbirds; Western grebes
Birk, Bernard and Ines, with son **20-21**
Black-chinned hummingbird 226, **227**
Black market: Kampuchea-Thailand 552, 577, 585, 592, 594, 605, 618; Nepalese musk oil 720
Blackboy tree: Fremantle, Australia **648-649**
Blainey, Geoffrey 666
Blair, James P., photographer: ***Toledo—El Greco's Spain Lives On.*** June, 726-753
Blair, Roger, and family 531
Blakeman, Ellen **532**
Bland, Mike 531, 546
Blinds, floating: Grebe study 624, **628,** 629, **629,** 630
Block, Ira, photographer: ***New Clues to an Old Mystery*** (Virgin-

ia's Wolstenholme Towne). Jan., 53-77
Blood-milk drink: Pokot herdsmen **132,** 134
Boats: Fishing-and-hunting **380-381;** Racing shell **812-813;** Reed boats **318-319;** Tour boat **478-479;** *see also* Barges
Boatswain's whistle: Gold **237**
Body decoration: Himbas 788; Pokot women 126, **126, 135;** Sudanese **350,** 354, 363, **366,** 367, cover; *see also* Tattoos
Bonaparte, Carlo 152
Bonaparte, Caroline **144,** 162, 168, 188
Bonaparte, Elisa **144,** 168
Bonaparte, Jérôme 168
Bonaparte, Joseph **144,** 152; King of Spain 168, 170, 173
Bonaparte, Julie Clary **145**
Bonaparte, Letizia **145,** 150, 152, **152,** 162
Bonaparte, Louis **144,** 168
Bonaparte, Napoleon *see* Napoleon I
Bonaparte, Pauline **144**
Bond, Alan 654
Bond Corporation Holdings Ltd., Perth, Australia 654
Borders, political (editorial) 1
Borodino, U.S.S.R. 173; Battlefield 174; Statue **174**
Bottle factory: Quemoy (island) **116**
Bottle fragments: Martin's Hundred Plantation, Va. **59,** 67; *Vasa* wreck (1628) 59, 67, **68**
Bottles, stoneware: Dutch shipwreck (1629) **57**
Boudin, Eugène 506-507
Boulos, Loutfy 216
Bourg St. Pierre, Switzerland 161
Brady, Brian T.: Earthquake predictions, Peru 289, 293, 297, 305
Brandberg mountain, Namibia: Cave paintings **792-793**
Brandenburg, Jim, photographer: ***Namibia: Nearly a Nation?*** June, 755-797
Brandenburg Gate, Berlin, Germany 4; Map locating 8-9
Brass artifacts: Brazier: Cardiff, Wales **58,** handle: Wolstenholme Towne site, Va. **58;** Statue: Kampuchea **594;** Sundial: *Santa Margarita* salvage **239,** 243
Bread, unleavened: Bedouin 432, **432-433**
Brecht, Bertolt 21, 31
Breed, Carol 208-210
Brewer, Alice and Emmett 528-529
Brewer, Nadine: ***Home to the Heart of Kentucky.*** Apr., 522-546
Bricklayer's jacket: Rotterdam, Netherlands 59, **76,** 77, buttons **76,** 77
Bridewealth: Pokot people 133, 134, 135
Brienne, France: Military school 152
Brisay (dam), Quebec, Canada: Power plant scheduled 411
British Reconnaissance Expedition (1951): Mount Everest 698
Broadsides: *The Face and Faith of Poland* 419, Apr. special supplement; 17th-century 61, **62**
Brocke, Frank 802, 818
Bronze artifacts: Kampuchea 579, 585; *Santa Margarita* salvage 236, **238,** 242; Statue of Sequana **480;** Vase of Vix 485, 490
Bropho, Robert 659
Brown, J. Carter: ***The Genius of El Greco.*** June, 736-744
Brown, Jonathan 738
Budapester Street, West Berlin **49**
Buddha *see* Gautama Buddha
Buddha images: Kampuchea 566, **586;** Vandalized 552, **553, 570**
Buddhism: Kampuchea 566, 586-587, monks 589, 606, 622, temples *see* Angkor; *see also* Tibetan Buddhism
Buena Vista (estate), Toledo, Spain 751-752
Bullfighting: Peru 289, 298, matadors **298-299**
Bullfrogs **82,** 83; Territoriality 82, 86
Burbank, Luther 681, 693
Burchfield, Harry 828
Burgundy (region), France: River Seine 485; Map 485
Burial mask, gold-and-silver **283**
"Burial of the Count of Orgaz" (El Greco) 730, **742,** 753
Burial practices: Permafrost region, Canada 394; Taiwan **108,** 109; *see also* Coffins; Graves; Tombs
Burress, Susan 535
Bushmen: Dance 755, **770,** 771; Family life 771, **771;** Name, preferred 755; Soldiers 755, **771;** Women 771, **771**
Bustamante, Agustín 738, 745
Button artifacts: Dutch bricklayer's jacket (1621) **59, 76,** 77; Wolstenholme Towne site, Va. **59, 76,** 77

C

Cadereita, Marquis of 232, 233
Café Kranzler, West Berlin 38
Cairo, Egypt 157, 198, 202; Assassination of Anwar Sadat 430, 452, 454-455
Caje, Angelica **337**
Cal, Pedron de la **748**
Caldron, 17th-century: Shipwreck find **68**
California: Balloon landing 515, **520-521,** 521
California fuchsia: Pollination by hummingbirds **222,** 223, **223**
Camas root: Palouse Hills, Idaho-Wash. 802, 806, 814
Cambodia *see* Kampuchea
Cambyses II, King (Persia): Army 208, 215
Camel caravans: Egypt 199, 208, 211; Route 211
Camels: Egypt **158-159,** cover; Sudan 370, 371, 374, 375
Camino Real Shopping Center, Lima, Peru **296-297**
Camp David accords 428, 430, 444, 457; Sudan's support for 356
Campbellsville, Ky. 531, 537, 539, 546; College 535, 536; Underwear factory **536,** 537
Canada: ***Henry Hudson's Changing Bay.*** By Bill Richards. Mar., 380-405; Potato varieties 676; ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418; ***Western Grebes: The Birds That Walk on Water.*** By Gary L. Nuechterlein. May, 624-637
Canadian government: Inuit affairs: Political territory, separate (proposed) 382, 385, 392, 394; Social programs 389, 394
Canadian Shield (Precambrian bedrock) 399; Waters, damming of 411, map-painting **410-411**
Canadian Wildlife Service: Polar bear study 384, 387
Canal-river network: France 484-485, 496, 504, map 484
Canals: France 485, 486-487, 496; Jonglei Canal project, Egypt-Sudan 352-353, **376-377;** Kampuchea 552, **559-562, 567,** 571, 574, irrigation 559, 571, 574; Western Desert, Egypt 200, 202, 207; *see also* Suez
Cane cutters: Kenana sugar estate, Sudan **358-359**
Caniapiscau River, Canada: Waters diverted 411, map 411, reservoir 416
Cannon, Gribeauval: Model **156**
Cape Dutch design architecture: Windhoek, Namibia **766-767**
Capra, Carlo 161
Caprivi (tribal district), Namibia 775, 782-783
Caprivi African National Union (CANU) 782
Caprivi Strip (region), Namibia 765, 782
Caps, mud: Pokot males **132,** 133
Caputo, Robert: ***Sudan: Arab-African Giant.*** Mar., 346-379
Caracal lynx **776**
CARE official: Peru 294
Cardinalfish: Palau Islands lakes **278-279,** 281
Caribou: Hunting of 382, 389, 392, 399, kill 382, **399,** overhunting 392, 399; Skins **388,** 392, Inuit clothing 389, 391, **402, 403**
Carr, David 654
Cartagena, Colombia: Trade, 17th-century 231, 232, slaves 232
Carter, Jimmy: Camp David accords 444
Carter's Grove plantation, Va.: ***New Clues to an Old Mystery.*** By Ivor Noël Hume. Jan., 53-77
Casilda, Saint: Legend 750

Castilian (salvage boat) 238, 239, 240
Castle Harbour, Bermuda: Shipwreck (1619) 67, 68, 70; Artifacts **69, 70**
Cathedrals: Paris 484, 491; Rouen, France **504,** renovation **505;** Toledo, Spain 729, **746-747**
Cattle raiding: Kenya 123, 130, 134
Caudebec-en-Caux, France: Church of Notre Dame 510
Cave paintings: Brandberg mountain, Namibia **792-793**
Caves: Egypt: Petroglyphs 216-217; Kentucky 537; Palau Islands lakes **270-271,** 272, 278
Celts: Gaul 481, 485, 488, 490
Center for Disease Control, Atlanta, Ga. 828
Central America *see* Panama
Cervantes, Miguel de 751, 752-753
Chad 356, 357, 361
Chains, gold **228-229,** 233, **234-235, 237,** 242, 243
Chalk mounds: Egypt **194-195, 212-213**
Cham people 550, 566, 581, 583
Chamber Music Festival group: Santa Fe, N. Mex. 333
Champa (historical kingdom), Southeast Asia 550, 566, 583
Champagne (region), France: Vineyards **487**
Champagne: Invention of 487
Champlain, Samuel de 481
Chan Mith **616**
Chang Shiao-chun 107
Chang Tsu-hou **118**
Changi Phuti **705**
Channeary Ry **604**
Chao, John, photographer: ***Taiwan Confronts a New Era.*** Jan., 93-119
Charles VII, King (France) 490
Charles, Hippolyte 157
Châtillon, France 485; Vase of Vix 485, 490
Chavez, Faustin "Tino" 326
Checkpoint Charlie, Berlin, Germany 17, 31
Cheese: Brie, production of 485
Cheetah: Man catching **794-795**
Chełmno, Poland: Food lines Apr. special supplement
Chemosynthesis: Bacteria: Palau Islands lakes 276
Chen Sun 105
Chen Wen-cheng: Death 114
Chenla (historical kingdom), Southeast Asia 554
Chepoptukoi (Pokot community), Kenya 122-123, 133
Cherangani Hills, Kenya **124-125**
Chesterfield Inlet (Inuit community), Canada 389, **389,** 404
Chevron Oil Company: Sudan 350, 363, 367, 370
The Cheyenne Social Club (film): Shooting location 336
Chiai, Taiwan: Vendors 104-105
Chiang Ching-kuo 98, 99, 119
Chiang Kai-shek 94, 98, 107; Heir *see* Chiang Ching-kuo; Memorial: Taipei, Taiwan **106-107;** Portrait **101**
Chiangchunao (island), Penghu islands, Taiwan **114-115**
Chicago, Ill.: Polish population 419
Child health care: Blood testing **363;** Bowleg surgery 437; Kampuchea **604;** Nutrition **678, 679;** Speech therapy for deaf **337**
Children: Aboriginals **664-665;** American-Vietnamese boy **141;** Armless boy **780;** Boy grieved by loss of sheep **317;** Boys playing soldier **321, 597;** Nepal **720, 721;** School busing **781;** Space travel simulation **28;** Taiwan **92-93, 118,** aborigines **112-113;** Tennis lesson **650-651;** Young Pioneers **14-15**
Chilies **324**
Chilung, Taiwan 101
China, People's Republic of: Alliance with Kampuchea 611, 612-613, 616, 622; Modernization 99; ***Nomads of China's West.*** By Galen Rowell. Feb., 244-263; Potatoes, "true seed" 693, 694; Taiwan issue 105, 119, reunification attempts 98, 99
China, Republic of *see* Taiwan
Chinese New Year feast: Taiwan **108-109**
Chirac, Jacques: French elections of 1981 503
Chirion, Alice 490
Chisasibi (Cree village), Canada 414, 416, **417**
Chopin, Frederic Apr. special supplement
Chorten **723**
Christensen, Margaret 336
Christian Democratic Party: West Berlin 36
Christian reconquest of Spain 728, 729, 734, 745, 748
Christian sites: Sinai 426-427, 437
Chuang, W. P. 111
Chuño (dried potatoes) 674, 693
Church barge: France **493,** 504
Church ethic: Kentucky 526, 531, 535, 536, 543-544
Church of Reconciliation, Berlin, Germany **10**
Church steeple, transported along back roads **538**
Churchill, Canada 381, 384, 385, 390, **390-391,** 395, **405**
Churchill, Cape, Canada: Polar bears 384, **393**
"Churning of the Sea of Milk" (bas-relief): Angkor Wat, Kampuchea 563-565, **563-565,** 566; Restoration 557, 564, 566, 567
"Churning of the Sea of Milk" (statuary): Angkor, Kampuchea **586-587**
cigarrales (country retreats): Toledo, Spain 750-753
Cities, evacuation of: Kampuchea 599, 604, 608
The Civilizing Seine. By Charles McCarry. Apr., 478-511
Clarbrough, Mal 713, 715, **715,** 724
Clarbrough, Margaret 713, 715
Claremont, Australia: Football team 655, 659; Sheep show 646
Clark, Ron 513, **516, 519, 520**
Clark family **524,** 525, **526-527, 540-541, 542-543**
Clifford E. Lee Foundation: Study grant: Humpback whale 466
Clock, digital: Chiang Kai-shek, portrait of **101**
Clothing factories: Campbellsville, Ky. **536,** 537; Churchill, Canada **390**
Clover Lick Farm, Ky. 539
Clyde, Lola 802, 803, 806, **810**
Clyde Farm, near Moscow, Idaho 802, **810**
Clyne, Pat 242, **243**
Coal: Namibia 762, 796
Coal miner: Poland: Ceremonial uniform Apr. supplement, cover
Cobb, Steve 536
Coca leaf usage: Peru 305, 312
Cocaine: Peru 312, **312**
Cocoa, Fla.: Armadillos 825
Cocoa beans barter: Aztecs 823
Code Napoléon 161
Coeur d'Alene Indian Reservation, Idaho: Homesteader 811
Coffee 547
Coffins, gable-lidded: England 59, 61-62, **62, 63;** Martin's Hundred plantation 59, 61, nails 61, **62;** Turkey **59,** 62
Cohen, Moti **453**
Coins: Bedouin veils **439;** *Santa Margarita* salvage: Gold coins **234,** 240, 243, silver coins 232, 233, 236, 239, 240, 242, 243
Colbung, Ken 662, 664, **665**
Colfax, Wash.: Ice-cream social **814**
Colonial America: ***New Clues to an Old Mystery*** (Virginia's Wolstenholme Towne). By Ivor Noël Hume. Jan., 53-77
Colton, Wash. 814, 818
Columbia River, U. S.–Canada: Prehistoric flood 807; Women's crew 812
Combines: Hydraulic, self-leveling 802, **804, 805**
Comédie Française: Actors **163**
Comic Opera, East Berlin: Performance **21,** 31
Commensalism: Mites and hummingbirds 226
"Commodity stories" editorial 547
Communism: Chinese civil war (1949) 94, 95; East Germany 4, 11, 19, 20, 21, 24, 25, 30, 32-33, Young Pioneers **14-15;** Kampuchea 571, 613-614, Revolutionary Youth **608,** 616, *see also* Khmer Rouge, *outlined;* Poland Apr. special supplement
Concentration camp sites: Poland Apr. special supplement
Condors: Peru 289, 294, 307, 312, 320
Conflans - Sainte - Honorine,

France **492,** 502; Barge festival 492, **492, 493**
Connelly, Owen 162, 165
Conrad, Joseph Apr. supplement
Conservation: Condors 289; Humpback whale 475, sanctuary proposed 466; *see also* Reforestation
Conservation groups: Funding for Mount Everest Park 699
Consolidated Diamond Mines: Diamonds **790;** Headquarters, Windhoek, Namibia **766;** Mines **758-759, 790-791,** 796-797; Namibia concession 759
Contour farming: Palouse Hills, Idaho-Wash. **804,** 814, **816-817, 819**
Convent of Jésus y María, Toledo, Spain: Nuns **749**
Convent of Santo Domingo el Antiguo, Toledo, Spain: Altarpieces by El Greco 734, 745; Tomb of El Greco 745
Cooking pots: Kampuchea **599**
Copepods: Palau Islands lakes 276, 279
Copernicus Apr. special supplement
Copper: *Santa Margarita* salvage 231, 233, 236, 239, 240, caldron 238
Corals and coral reefs: Palau Islands lakes **270-271,** 278; Red Sea 428, 459, **460,** 461
Cordero, Helen: Pottery figurine by **343**
Corn: Kentucky 525, 527, 531, 544; Planter, two-row **542-543**
"Corn Maiden" (sculpture) **342**
Cornell University, New York: Mud-puddle frog study 80
Corpus Christi, feast of: Toledo, Spain 729, 730, 732, **746**
Corriedales: Perth, Australia sheep show 646
Corsica (island), France 150, 152; Birthplace of Napoleon **153**
Costa's hummingbirds **224-225**
Cottesloe Beach, Australia: Jogger **660-661**
Coulson, Cotton, photographer: ***Two Berlins—A Generation Apart.*** Jan., 2-51
Counter-Reformation: Spain 738
Court, Sir Charles 666
Covarrubias, Antonio de 751
Covelo, Calif.: Landing of *Double Eagle V* 515, **520-521,** 521
Crabs: Palau Islands lakes 278
Creation legends: Aboriginals 662; Hinduism 563, 566, bas-relief 557, **563-565;** Seine 482
Cree Indians 384, 400, 411, **414,** 414-415, 416, **416, 417**
Crespi de Valldaura, Gonzalo 730
Crew, women's: Washington State University **812-813**
Crocodiles, saltwater: Palau Islands lakes 272, 273, 281-282
Crop dusting: Palouse Hills, Idaho-Wash. 801, 807-808
Crosby, John 333
Crossbreeding: Potatoes 681, 694; Wheat **805**
Crowley, Mary 464
Crum, George 687
Cubans: Angola 764; Kampuchea 567
Cuevas, Jerónima de las 748
Curie, Marie Apr. special supplement
Curley, Tagak **384,** 392, 394
Cush (ancient kingdom) *see* Kush
Cuzco, Peru 289, 293, 299, 307; Valleys near **286-287, 308-309**
Czechoslovakia 162-163
Częstochowa, Poland: Shrine and icon Apr. special supplement

D

Da He Ba, People's Republic of China **258-259**
Dairy farms: Kentucky 528, 531, 545
Dakhla Oasis, Egypt **192-193,** 200, 202, **202;** Tombs near **208-209, 219;** Yardang near **213**
Dalkeith, Australia 643
Dam construction: Canadian rivers 399, 401; Kentucky 537
Damaras (people): Namibia 762, 768, 788
Damascene work: Moors 735
Dams: Egypt 201; ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418
Dance-exercise group: Taiwan **106-107**
Dancers: Ballet dancers **657, 815;** Bushmen 755, **770,** 771; Kampuchean 549, 589, **595** *see also* Apsaras; Pokot people 120, **128-129,** 129, 140; Sherpas 724; Spanish dancer in Santa Fe **328;** Tibetan Buddhist monk **708**
Dapsone (malaria drug) 828
Darling, Jim 464, 465, 470, 475
Date industry: Egypt 198, 199, 207, **207,** 423, **432,** 434
Date line: Balloon crossing 514
David, Jacques Louis **145;** Paintings by **143, 144-146**
Davis, Alan and Joan 503
Day, Jim **800**
Dayan, Moshe 456-457
Deaf child: Blowing bubbles **337**
Deer: Musk deer 716, 719, poaching of 720
Deforestation: ***Park at the Top of the World: Mount Everest National Park.*** By Rick Ridgeway. June, 704-725; ***Preserving a Mountain Heritage.*** By Sir Edmund Hillary. June, 696-703
Degrave family: Barge life **494-497**
Dehler, Wolfgang **21**
Delta Marsh, Manitoba, Canada: ***Western Grebes: The Birds That Walk on Water.*** By Gary L. Nuechterlein. May, 624-637
Democratic Turnhalle Alliance 765, 768, 769, 775, 782; Elections 762, 791, 793
Demonstrations and protests: Kampuchea 616; Namibia 765; Peru 291; Sinai Peninsula, Egypt **446,** 456; West Berlin **10, 38-39,** 42, 46
Depressions, geological: Kentucky 537; Namibia 778-779, 786; Western Desert, Egypt *see* Oases
Derry, N. H.: Potatoes introduced 687
Desalination plant: Swakopmund, Namibia 788
Desert farming: Egypt 191, 198-199, 200-201, **203,** 207, 208, 220; Sinai Peninsula 423, 432, 434, **445, 450-453,** 456
Desertification **203,** 702, 710
Deserts: Driest 303, **314-315;** ***Egypt's Desert of Promise.*** By Farouk El-Baz. Feb., 190-221; ***Eternal Sinai.*** By Harvey Arden. Apr., 420-461; Namibia 755, 756-757, **756-757,** 762, 771, 787, **796-797;** Peru 289, 293, 298, 303, **314-315**
De Vargas, Diego 323, 326
deVore, Nicholas, III, photographer: ***Park at the Top of the World: Mount Everest National Park.*** June, 704-725
Diamond mining: Namibia 758-759, **758-759,** 762, 764, 765, 784, 790, **790-791,** 793, 796-797; Western Australia 653
Didgeridoo **664-665**
Digges Island, Canada: Seabird colony 396, 397, 399
Dillinger, John 668
Dimacor Diamond Mining Company, Namibia: Prospecting 784
Dingle Peninsula, Ireland: Potatoes 686
Dinkas (tribespeople): Sudan 354, 355, 359, 362, **372-373**
"Disrobing of Christ" (El Greco) **740,** 745
Distilling apparatus: Alembic 53, **57**
Divers and diving: Red Sea coral reefs 459, **460,** 461; ***Strange World of Palau's Salt Lakes.*** By William M. Hamner. Feb., 264-282; *see also* Salvage
Diving birds: ***Western Grebes: The Birds That Walk on Water.*** By Gary L. Nuechterlein. May, 624-637
Di Zahav, Sinai Peninsula, Egypt: Israeli withdrawal 455
Doctors: Kampuchea **604,** 605, 617; Leprosy research 828, 830; Royal Flying Doctor Service, Australia 666; Santa Fe, N. Mex. pueblos 336; Sinai 434, 437, **448;** Sudan 363
Domaradz, Poland: First Communion recipients Apr. supplement
Dorman, Stan 646
D'Orsonga, John and Tom **652**
Doubilet, David, photographer: ***Eternal Sinai.*** Apr., 420-461; ***Strange World of Palau's Salt***

Lakes. Feb., 264-282
Double Eagle V: ***First Across the Pacific: The Flight of* Double Eagle V.** By Ben L. Abruzzo. Apr., 513-521
Altitudes 513, 514, 515, 518; Maps 514-515, 521
Ballast 513, 515, 518, 519, **519,** 521; Diagram 517
Crew 513
Cutaway drawing **517**
Distance 513; Diagram 514-515; World's record 515
Duration of flight 514-515
Gondola **512,** 513, **516-517,** 517, **519;** Diagram 517; Name 519
Hazards: Ice 513, 514, 515, **518-519;** Storm 521
Landing 515, **520,** 521; Map 521
Launching 513, 514, 519
Size and weight 513
Speed 513, 515
Winds 513
Drought: Australia 663; Kampuchea 552, 605, 607; Namibia 787-788
Drugs, illegal: Peru 305, 313, 316, smuggling 312, **312**
Dudh Kosi Valley, Nepal 698
Duecker, Otto **325**
Dunes *see* Sand dunes
Dupars, Louis 485, 490
Durack-Miller, Dame Mary 643
Dutch West India Company 232; Raiders 236, 238
Dye marking: Animal studies: Polar bears 395, **395;** Western grebes 630
Dyeing: Natural plant colors 801

E

Eagles: Bald eagles 695
Earthenware, tin-glazed: Martin's Hundred plantation, Va. **58**
Earthmover: Canal construction: Sudan **352-353**
Earthquakes: Peru 289, 293, 303, 304, 305-306; Taiwan 103, 104
East Germany *see* Berlin, East
East-West Cross-Island Highway, Taiwan: Construction 111
Eastern Europe: Potato consumption 686, 689
Eastmain River, Canada: Diversion of waters 410, **412,** 413, **413;** Map 410-411
Eaves ranch, near Santa Fe, N. Mex. 336, 340
Echo (magazine): Editor 105
Echolocation: Bats 80, sonar appendages **87**
École Française d'Extrême-Orient: France 568
École Militaire, Paris, France 152
École Rabelais, Dardilly, France: Potato dishes 686
Ecosystems: Ras Muhammad coral reefs, Red Sea 428, 459, 461; ***Strange World of Palau's Salt Lakes*.** By William M. Hamner. Feb., 264-282
Edelen, Tom: Mailbox, flag-painted **522-523**
Edmund, Gordon 825
Edwards, Brooks 532-533, **532**
Edwards, Ellen **532**
Edwards, Lorene 539
Eggshells, ostrich: Egyptian archaeological dig 216, **219**
Église Sainte-Catherine, Honfleur, France 511
Egypt: ***Egypt's Desert of Promise*.** By Farouk El-Baz. Feb., 190-221; ***Eternal Sinai*.** By Harvey Arden. Apr., 420-461; Napoleon's expedition 149, 157, 158-159
Ehrlichman, John 326, 331, **339**
Eid, Guy 356
Eil Malk (island), Palau Islands **267-269,** 272, 281-282 *see also* Spooky Lake
Ein Gomah, Egypt: Well 198
El Arish, Sinai Peninsula, Egypt 428, 442, **442-443**
Elba (island), Italy: Napoleon's exile 180; Villa **180**
El Bagawat (necropolis), Egypt **196-197**
El-Baz, Farouk: ***Egypt's Desert of Promise*.** Feb., 190-221
Electromagnet, 600-ton **408**
Electromagnetic detector **233**
Electronics industry: Taiwan 103, 105, plant **102-103**
Elephants: Namibia 768, **778-779**
El Gedida (iron mine), Egypt 209; Marine fossils near **214**
El Gezira, Sudan 375-376
El Greco: ***The Genius of El Greco*.** Introduction by J. Carter Brown. June, 736-744; ***Toledo—El Greco's Spain Lives On*.** By Louise E. Levathes. June, 726-753
Art studies 729, 739
Birth 739
Commissions 730, 734, 741, 745; Copies of works 742
Contemporaries 730, 744, 751
Extravagances 729
Mistress 748
Painting style 736, 738, 739, 741, 745; Elongation of human figure 736, 745; Portraiture 730, 738, 742; Use of light 738, 739
Patrons 729, 739
Portfolio of paintings **736-744;** Exhibition, U. S. 738
Residence 748
Son **742,** 745, 746, 748
Temperament 729
Tomb 745
Writings on theory of painting 738, 745, 751
El Kharga, Egypt: Desert advances **203**
Ellis, Graeme and Linda **463,** 465
Ellis, William S.: ***Goal at the End of the Trail: Santa Fe*.** Mar., 323-345
Elmalem Chocron, Albert **730,** 749
El Obeid, Sudan 198-199
El-Prince, Mahmoud 217, 220
El Puente del Arzobispo (town), Spain: Pottery making 734
El Qasr, Egypt **192-193, 205, 208-209**
Eluheimir, Sudan: Nuba wrestling match 367, 368, **368-369**
Embroidery: Bedouin **422;** Toledo Province, Spain 729, 730, 734
Emerald rings: *Santa Margarita* salvage 233, **237,** 239
Endangered and threatened species: Caribou 392, 399; Humpback whale (pre-1966) 475; *see also* Condors
Energy development: Canada: ***Quebec's Northern Dynamo*.** By Larry Kohl. Mar., 406-418; France **491;** Nepal 702, alternative to firewood 715, 724; *see also* Oil exploration; Solar energy development
Energy source: Potatoes 668, 671
English Channel 481
English language: Namibia 765, 768, 775, 782, 788
English settlers: ***New Clues to an Old Mystery*** (Virginia's Wolstenholme Towne). By Ivor Noël Hume. Jan., 53-77
Enosh, Yaron 457, 459
Erasmus, Beytell 768
Erickson, Diane 384
Erim, Kenan T. 62
Erosion: Angkor temples 552, 577; Nepal 710; Palouse Hills, Idaho-Wash. 802, 812, 814, prevention 814; Wind: Egypt 201, 210, 213, 215, 216, 220, remnants **194-195, 196-197, 212-213, 214, 216-217**
Esch, Angela 42
Eskimo Point (Inuit community), Canada **382-383, 386-387,** 391
Eskimos, Canadian *see* Inuit
Essay supplement: *The Face and Faith of Poland*. Apr.
Etam, Sinai Peninsula, Egypt: Peacekeeping force 429
Etam Air Base, Sinai Peninsula, Egypt: Dismantled **457**
***Eternal Sinai*.** By Harvey Arden. Apr., 420-461
Ethiopia: Refugees in Sudan 357
Ethnology *see* Aboriginals; Gologs; Pokot people; Sherpas
Ethyl alcohol, from potatoes 671
Etosha National Park, Namibia 778-779, 783; Elephants **778-779**
Etosha Pan, Namibia 768, 778-779
Etzion Air Base, Sinai Peninsula 437, 457
Europe: ***Napoleon*.** By John J. Putman. Feb., 142-189; ***New Clues to an Old Mystery*.** By Ivor Noël Hume. Jan., 53-77; Potatoes 668, 671, 677, 679, 682, 686, 688, 689; *see also* Berlin, East; Berlin, West; France; Poland; Spain; Spanish galleons
Evangelical Lutheran Ovambokavango Church (ELOC) 775
Evans, Clifford 283
Everest, Sir George 700
Everest, Mount, China-Nepal:

Park at the Top of the World: Mount Everest National Park. By Rick Ridgeway. June, 704-725; ***Preserving a Mountain Heritage.*** By Sir Edmund Hillary. June, 696-703
Accessibility 699, 702, 704, 712
Aerial view **700,** 704
Base Camp 699, 704, 719, 720, 722
Climbing expeditions 699, 701, 704, 722, **723;** First to gain summit 698, 712; North Slope attempts 711, 712; South Slope route, blazing of 698, 712; Summit attainers 712
Deterioration of area 696, 698, 699, 702, 710
Jet stream, punctures 711
Name: Nepalese 700, 702, 704; Origin of "Everest" 700
Visitors to region 696, 698, 699, 702, 710
Ewald, Paul W.: ***Hummingbirds: The Nectar Connection.*** Feb., 223-227
Exercise programs: Taiwan **106-107,** 111, 119; West Berlin **42-43**
The Exodus: Theories of Sinai wanderings 432, 444, 447, 449
Explorers: Hudson Bay, Canada 382, 404; Machu Picchu, Peru 299, 307; Western Desert, Egypt 198-199, 210, 216-217, map of routes 200-201

F

"Fable" (El Greco) **739**
The Face and Faith of Poland. Apr. special supplement
Facial decoration: Nose pendant **204;** Paint and chalk **126,** 135, **138;** Scarification **350, 366,** cover; Tattoos **204**
Fair Winds and Full Sails—Perth. By Thomas J. Abercrombie. May, 638-667
Faiyum Oasis, Egypt 202; Villagers **206-207**
The family: European barge society 494; Kampuchea 599, 611; Kentucky 525, 526, **526-527,** 535, 536; Nepal 707, 712-713, 724; Taiwan 103, 109
Family farms: ***Home to the Heart of Kentucky.*** By Nadine Brewer. Apr., 522-546; Palouse Hills, Idaho-Wash. 801, 809, 812, 818
Famine: Ireland 679, 682, 688; Kampuchea 604, 605, 606
Farafra Oasis, Egypt 200, 202, 210; Desert near **194-195, 212-213, 214, 221,** seismic studies of 220
Farming: Berlin 8, **12-13,** 38, 41, **44;** Namibian small-scale farming 760, 768, 772-773, 780, 782, 788; Nepalese terraced and walled fields **710-711;** Peru 308-309; Pokot people 120, 123, 125, **125,** 126, 130; Sudan 355, 362, 367, 375, 376; Taiwan 101; *see also* Desert farming; Family farms; Hill farming; Potatoes
Farnese, Alessandro Cardinal: Patron of El Greco 739
Fast-food boom: United States 682, 687
Félix Paravicino, Hortensio 730, 751; Portrait by El Greco 730, **744**
Fencing champion: Spain **735**
Fenn, Forrest 331, 332-333, **345**
Fernández Ordóñez, Francisco 732
Ferrari, Mark 466, 475
Ferrer, Vincent 748
Festivals: Bushmen 755, **770;** France **492, 493, 506-507;** Ice-cream social **814;** Kampuchea 606; May Day, East Berlin **14-15,** 32-33; Potato Blossom Festival, Maine 687, queen **692;** Santa Fe, N. Mex. 323, 326, 328, 333, 336; Tibetan Buddhism **708, 709**
Fiddler on the Roof (musical): East Berlin performance **21,** 31
Field, Drew 332
Fierro, Marcella F. 72-73
Fiesta de Santa Fe: Santa Fe, N. Mex. 323, 326, council 336, Spanish dancer **328**
Fighter-bomber pilot, Israeli **454**
Figueroa, Alvaro: Country retreat 751-752
Film making: Eaves ranch, Santa Fe, N. Mex. 336; NGS polar bear special 387, **394-395**
Fire symbol: Ovambo people 769
Firewood taking: Deforestation, Nepalese 698, 702, 710, 713, 715, 716
***First Across the Pacific: The Flight of* Double Eagle V.** By Ben L. Abruzzo. Apr., 513-521
Fish: Palau Islands lakes **278-279,** 281; Red Sea 459, 461
Fisher, Dolores 238, 243
Fisher, Kane 239
Fisher, Melvin A. **243;** ***Treasure From the Ghost Galleon:* Santa Margarita.** By Eugene Lyon. Feb., 228-243
Fishermen's stilt huts: Kampuchea **612-613**
Fishing: Inuit 392, 397, 400, 411
Fishing, commercial: Australia 646; France 481; Mediterranean **443;** Namibia 793, 796; Peru 290, 303, 312; Ras Muhammad 459
Fishing, sport **339**
Fishing rights: Canadian natives 400, 414
Fitch, Henry 818
Fitzgerald, John 686
Flamingos **756-757,** 779, 793
Flanagan, Danny and Ginny 536
Fleming, Kevin, photographer: ***Eternal Sinai.*** Apr., 420-461; Witness to Anwar Sadat's assassination 452, 454-455
Flight, transpacific: First manned balloon *see Double Eagle V*
Flood control: Kampuchea 567
Floods: Egypt 220; Idaho 803, 806-807, 818; Kampuchea 605, **606-607;** Sinai Peninsula 450
Florida: Armadillo population 825, 827, 828; *see also* Marquesas Keys
Flower pollination: ***Hummingbirds: The Nectar Connection.*** By Paul W. Ewald. Feb., 223-227
Folk art: Australian Aboriginals **663;** Inuit soapstone carving 397, 400; Taiwan 109; *see also* Art, native American
Fontainebleau (château), France 490-491; Courtyard **178;** Hunting party **150-151**
Food and Agriculture Organization of the United Nations (FAO): Report on Kampuchea 605-606
Food chain: Palau Islands lakes 271, 276, 279
Food crisis, world: Potato as solution 679, 682, 684-685, 693-694
Food lines: Poland Apr. special supplement
Foot-binding, victim of: Penghu, Taiwan **115**
Football: Australian Rules 655, 659
Ford, Henry 671
Forever Safe mine, Taiwan: Collapse 109
Formosa: Name origin 109-110; *see also* Taiwan, *outlined*
Formosa Strait, China: Smuggling 105
Forster's terns **628,** 630
Fort George (Cree village), Canada: Relocated 414-415; Remains **414-415**
Fort Prince of Wales, Canada 404
Forts and fortresses: Sinai Peninsula **424-425;** Spain 729; Wolstenholme Towne, Va. **55-56,** 60, 67; *see also* Bar-Lev Line
Fountain, Pete 801, 807-809; Sons 807-808
Fountain, Ron 807-808
Fox furs: Arctic fox **390,** 402
Foyer des Capucins (club) 490
France: Aid in Angkor temple reconstruction 551, 568, 570 *see also* Angkor Conservancy; ***The Civilizing Seine.*** By Charles McCarry. Apr., 478-511; ***Napoleon.*** By John J. Putman. Feb., 142-189; Potatoes 686-687, 691; Relations with Kampuchea 551, 568, 570, 581, 589, 598, 605, 611
Francis I, Emperor (Austria) 165, 167, 170
Franciscans: Santa Fe, N. Mex. 334
Frankenberg, Christophe **32**
Frankenberg, Vera: Grave **32**
Franklin, Benjamin: Potato feast 687; Proposed turkey as national symbol 695
Frederick II, King (Prussia): Statue of: East Berlin 20
Freeze-drying process: Potatoes 693

Freighter, grounded **459**
Fremantle, Australia: Blackboy tree **648-649;** Floating stockyards **644-645,** 647, 651; Football team 655
French Bank Centre, Windhoek, Namibia: Escalators **767**
French fries 677, 681, **682;** Frozen 687, 693; U. S. consumption 687
French sector, West Berlin 8, 9, 11; Map showing 8
French settlers: North America 481, 537, 545
Friedland, Battle of (1807) 149, 163
Fringe-lipped bat *(Trachops cirrhosus) see* Frog-eating bat
Frog-eating bat: ***The Amazing Frog-Eating Bat.*** By Merlin D. Tuttle. Jan., 78-91
Harem **87**
Hearing sensitivity: High-frequency signals 80; Low-frequency capability, newly discovered 80
Hunting: Auditory cues 78, 80, 81, 82, 83
Predators of 90
Range 80, 81; Map 81
Recognition of inedible frogs 78; Calling-pattern factor 80, 82, 85; Instinct 80; Sensors (dermal denticles) 84
Roost **81, 87**
Sonar 80; Appendages **87**
Trained bats **83, 84-85,** 85, 86, 90
Frogs: ***The Amazing Frog-Eating Bat.*** By Merlin D. Tuttle. Jan., 78-91; Norman sorcery 510
Fuchsia blossoms **222,** 223, **223**
Fuel: Firewood 698, 702, 710, 713, 715, 716; Potato gasohol 668, 671; Yak dung 252, 261
Fujiyama (mountain), Japan: Balloon flight over **512, 514**
Funan (historical kingdom), Southeast Asia 554
Fur trade: Hudson Bay region 389, 390, 402, 403, 414, 416; Palouse Hills, Idaho-Wash. 807
Furniture: Antique reproductions 537
Furs and hides: Arctic fox **390,** 402; Caribou skins **388-389,** 391, 392, **402-403;** Sheepskins **253;** Wolfskin **384**

G

Gahan, Gordon W., photographer: ***Goal at the End of the Trail: Santa Fe.*** Mar., 323-345; ***Napoleon.*** Feb., 142-189
Gaillard, Château, near Les Andelys, France **499**
Galiana, Palacio de, Toledo, Spain: Legend 750
Galleons: ***Treasure From the Ghost Galleon:*** **Santa Margarita.** By Eugene Lyon. Feb., 228-243
Galway, County, Ireland: Family meal 682, **688;** Potato famine 679, 682, 688
Game farms: Namibia 776, 783, 794, **794-795**
Game management: Namibia 776, 783, 794
Garden House (residence), Santa Fe, N. Mex.: Pool **322**
Garia, Mount, Sudan **376**
Garnets: Namibia 784
Garrett, Wilbur E. 585, 589, 597; ***The Temples of Angkor: Will They Survive?*** May, 548-551; photographer: ***The Temples of Angkor: Ancient Glory in Stone.*** May, 552-589
Gasohol, potato 668, 671
Gaston, Tony 399
Gautama Buddha 566; Images 566, **586,** vandalized 552, **553, 570,** 571, 584; Temple dedicated to *see* Angkor Wat
Gbudwe (king of the Zandes) 355; 359; Tomb 359
Gdańsk, Poland Apr. supplement
Gemsboks **777, 796**
Generating plants: Porcheville, France **491;** Quebec, Canada **408,** 410
Genetic research: Armadillos 820, 828; Potatoes 672, 681, 685, 686, 693
The Genius of El Greco. By J. Carter Brown. June, 736-744
Genocide: Kampuchea 549, 590, 592, 600, 605; Mass graves 549, 599, 602, **602-603**
Geology: ***Egypt's Desert of Promise.*** By Farouk El-Baz. Feb., 190-221; Palouse Hills, Idaho-Wash. 803, 806-807
German Alpine Club volunteer work: Nepal 716
German colonies: South-West Africa 755, 757, 765, 767-768, 782, 786, 791, 793
German Democratic Republic: Kampuchean students 622; *see also* Berlin, East
German settlers: Namibia 762, 787, **787,** 791, 793, 797; Uniontown, Wash. 811
German State Opera, East Berlin 17, 26, 31
Germany *see* Berlin, East; Berlin, West
Gerova Ortega, Ginka 752
Gerster, Georg, photographer: ***Egypt's Desert of Promise.*** Feb., 190-221
Ghee: Pokot people 126, 134, 140
Gibb, Tony 788
Gidi Pass, Sinai Peninsula, Egypt: Arab-Israeli war (1973) 444
Gilf Kebir Plateau, Egypt 211, 216
Ginah, Egypt: Ghost village 208
Ginsberg, Allen 331
Giraffes 768, 779, 783, 787
Giscard d'Estaing, Valéry 498, 503
Giverny, France: Monet's home and gardens **502-503**
Giza Sphinx: Egypt 213, diagram **213**
Glacial dam, prehistoric: Palouse Hills, Idaho-Wash. 803, 806-807
Glacial epoch: Hudson Bay region, Canada 399
Glacier: Nepal **700-701,** 722
Glass bottles: Martin's Hundred plantation, Va. **59,** 67; *Vasa* wreck 59, 67, **68**
Glass shrimp: Spooky Lake, Palau Islands **273**
Glockner-Ferrari, Debbie 466, 475
Gnomon: Pocket sundial **239**
Goal at the End of the Trail: Santa Fe. By William S. Ellis. Mar., 323-345
Goats: Angora 801; Himalayan tahrs **717,** 719; Pokot people 123, **131,** sacrifice of 120, 131; Sinai Peninsula, Egypt **422-423,** 428, 432, 434
Golan Heights, Syria: Arab-Israeli war (1973) 444
Gold: Egypt **204;** Kampuchea 594, 599, means of exchange 594, 618-619; Perth mint bullion 653; Peru **283,** 298, 307, 668; *Santa Margarita* salvage **228-229, 234, 235, 237,** 239, 240, 242-243
Gold Creek Ranch, Idaho 801-802, 814; Volcanic ash 801
Gold mining: Peru 293, 306, 307, 320; Western Australia 653
Gold rush: Western Australia 643
Golf course: Fremantle, Australia **648-649**
Gologs (tribespeople): ***Nomads of China's West.*** By Galen Rowell. Feb., 244-263
González Martín, Marcelo Cardinal 730, 732, 733
Gordon, Charles George "Chinese" 374
Gorin, Betty Jane 526
Gould, Peter 330-331
Grab, Ky.: Softball team **530**
Graham, Martha 109
Grain grinding: Ovambo women 769; Pokot women 130; Sudanese women **346-347**
Grand Hotel, Taipei, Taiwan **105**
Graves, mass: County Galway, Ireland 679, 682, 688; Kampuchea 549, 599, **602-603,** number of 602
Gravon region, France **486-487**
Graz, Austria: Landeszeughaus arsenal museum **64-65, 66,** 67
Graziani, Jean 152
Great Britain: Napoleonic wars 180, 181, naval battles 149, 159; West Berlin, protection of 8, 9, 11, 50, map of British sector 8
Great St. Bernard Pass, Italy-Switzerland: Hospice **154-155,** 157; Napoleon's crossing **155**
Great Sand Sea, Western Desert, Egypt **190-191,** 206, 208, **214-215,** 215, 220
Grebes: ***Western Grebes: The Birds That Walk on Water.*** By Gary L. Nuechterlein. May, 624-637
Greek Orthodox Church: Gebel Musa chapel, Sinai Peninsula, Egypt 437, 449; *see also* St. Catherine's Monastery

Green, Jim 536
Green County, Ky.: ***Home to the Heart of Kentucky.*** By Nadine Brewer. Apr., 522-546
Green River, Ky. 537, 538; Dam 537
Greensburg, Ky. 525, 527, 533, 534, **535,** 539
Gribeauval cannon: Model **156**
Grobler, Manie 783
Groslier, Bernard Philippe 555, 559, 560, 564, 568, 570, 571, 572, 574, 577, 579, 582, 584, 585
Grosser Wannsee (lake), West Berlin **45**
Grotius, Hugo 59, 76, 77; Jacket **76**
Groundwater: Australia 651; Western Desert, Egypt 191, 192-193, 198, 199, 201, 220, **221**
Grove, Noel: ***Taiwan Confronts a New Era.*** Jan., 93-119
Grunewald Forest, West Berlin 36, **44-45**
Grunewald Lake, West Berlin 37
Gschiel, August **66**
Guerrillas: Kampuchea 549, 570, 571, 581, 584, 592, 597, 598, 601, 604, 611, 617, 622; Namibia 755, 761, 762, 768, 780
Gühring, Werner 796
Guildford, Australia 659
Gumila, Nepal: School construction **698**
Gymnasts: Taiwan **116-117**
Gypsies: Toledo, Spain 729

H

Haag, Romy 40
Habitat destruction: Jonglei Canal construction, Sudan 352-353, 376-377; Quebec hydroelectric sites 416
Haering, Werner 50
Halensee park, West Berlin **45**
Halfbeaks: Palau Islands lakes **279,** 281
Halifax Island, South Africa: Guano exports 788; Penguins **789**
Halkett, Lawrie **713,** 716, 719
Hamars (Arab tribe) 370
Hamdi, Ahmed: Tunnel named for 438
Hamner, Peggy 264, 271, **274,** 281-282
Hamner, William M. **265-266, 275;** ***Strange World of Palau's Salt Lakes.*** Feb., 264-282
Hancock, Lang George 651, 653, **653**
Hanuman (Hindu god) 579; Basrelief 563, **565**
Hanuman (snake) **574,** 579
Harry Frank Guggenheim Foundation 223
Harshavarman I, King (Khmer Empire) 570
Harvey, David Alan 549, 617; photographer: ***Kampuchea Wakens From a Nightmare.*** May, 590-623
Harwood, William 60, 67
Haskins, Clem 534
Haskins, Jack 238
Hassanein, Ahmed 198-199, 201, 210, 217
Havana, Cuba: Trade, 17th-century 231, 233
Havel River, East Germany 36; Yacht race **44-45**
Hawaii: ***New Light on the Singing Whales.*** By Roger Payne. Apr., 463-477
Haynes, C. Vance 210, 211, 216
Headdresses: Bead chain and feather **136-137, 139;** *krama* scarf 590, **590-591;** Lace, starched **506-507;** Leafy **136-137;** Mud caps, tinted and patterned **132,** 133; Tarhah scarf **362**
Health care: Flying doctor service 666; Heart surgery 448; Namibia 766-767, 788; *see also* Child health care; Doctors; Medical research
Helmets, 17th-century: Landeszeughaus, Graz, Austria **64-65, 66,** 67; Martin's Hundred plantation, Va. **66,** 67
Henderson, Brittany **692**
Hendrix, Marcy **337**
Heng Samrin 613
Henrichsen, Jörg 788, 791
Henry Hudson's Changing Bay. By Bill Richards. Mar., 380-405
Herding: Australia 643, 644, **644-645,** 646, **646-647,** 647, 651; Gologs 249, 252, **260-261;** Himbas 775, 787-788; Ovambos 760, 768; Peru **286-287, 316-317;** Pokot people 120, 123, 125, 126, 133-134; Sudanese tribes 350, 355, 362, 363, 367, 371, **372-373,** 374, 375, 376, 378
Hereroland, Namibia 767
Hereros 762, 763, 765, 768, 775, 788; Uprisings 755, 767-768; Women **754,** 763
Hess, Rudolf 38
Hide clothing: Inuit **388-389,** 391, **402-403;** Pokot people 135, **138**
Hill farming: ***A Paradise Called the Palouse.*** By Barbara Austin. June, 798-819
Combines, hydraulic self-leveling 802, **804, 805**
Contour terraces **804,** 814, **816-817, 819**
Crop dusting 801, 807-808
Crops 802, 809; Alfalfa **806-807;** Lentils 801, 807, 812; Peas, dry 807; Wheat 801, 803, **804, 805,** 812, 814
Erosion problems 802, 812, 814
Steepness 799, 801; 30-degree farming 801, 805
Hillary, Sir Edmund **698,** 712, 713, 720; ***Preserving a Mountain Heritage.*** June, 696-703
Himalayan tahrs **717,** 719
Himalayas (mountains), Asia: ***Park at the Top of the World: Mount Everest National Park.*** By Rick Ridgeway. June, 704-725; ***Preserving a Mountain Heritage.*** By Sir Edmund Hillary. June, 696-703
Himbas 775, 787-788; Women **774**
Hindu images: Kampuchea: Basreliefs 548, **548, 557,** 563-565, **563-565,** 566, 567, **580;** Statuary 585, 586, **586-587**
Hinduism: Kampuchea 555, 556, 559-560, 561, 562, 566, 579, 583, 586-587, creation myth 563, 566, temples 554, **554-555, 560-562,** 561, 566
Hiser, David, photographer: ***Henry Hudson's Changing Bay.*** Mar., 380-405
Hoanib River, Namibia: Skeletons 784
Hoarusib River, Namibia: Himba encampment 787-788
Hodgenville, Ky. 529, **534-535**
Hodgson, Bryan: ***Namibia: Nearly a Nation?*** June, 755-797
Hog butchering: Kentucky **540-541**
Hohenzollern kings 9; Castle 17
Hohuan, Mount, Taiwan: Climbers **118;** Height 118
Holy Week: Peru 303, 304-305, 305-306, processions 289, **304-305,** 305; Poland Apr. special supplement
Home to the Heart of Kentucky. By Nadine Brewer. Apr., 522-546
Homesteading: Australia 642, 643; Kentucky 527, 546; Palouse Hills, Idaho-Wash. 799, 802, 803, 806, 811, 814, 818
Honecker, Erich 15, 33; Portrait **14**
Honfleur, France 481, 510, 511
Horan, David Paul 238, 240
Horses *see* Appaloosa horses
Horwitch, Elaine **325**
Hot Water Lake, Eil Malk Island, Palau Islands 281-282
Houk, Joey **544**
Houser, Allan **331**
Houses, prefabricated: Yammit, Sinai Peninsula **420-421,** 456
Houses, solar-heated: Santa Fe, N. Mex. **324-325,** 340
Hsieh Chen-chuan **115**
Hsu, Paul 99
Huang (Yellow) River, People's Republic of China 248
Hubble, Joe **57**
Hubert, Gérard 165
Hudson, Henry: Death 382
Hudson Bay, and region, Canada: ***Henry Hudson's Changing Bay.*** By Bill Richards. Mar., 380-405
Bay: Area 382; Discovery 382; Ice conditions, seasonal 382, 384, 387, 391, **393,** 394, 395; Port, major *see* Churchill; Quebec shore 385, 399; Western shore 381, 385, **386-387,** 391
Energy development: Hydroelectric 399-400, map 385; Uranium mining issue 402
Gas and oil resources 392
Geological history 399
History 381, 382; Hudson's Bay

Company 396, 403, 404
Map 385
Permafrost 394, 396
Tree line 381, 385; Map 385; Political boundary (proposed) 392
Tundra 381,384, 385, 399
Vegetation 384, 399
Wildlife 384; Marine mammals 384, 385, 387, 392, 397, 401, **401;** Seabird colony 396, 397, 399; Tourist attractions 384, 395, 400; *see also* Polar bears
see also Inuit, *outlined*
Hudson's Bay Company 389, 403-404, 414; Abandoned warehouse and factory ruins **396**
Hughes, Thomas 678-679
Hugo, Victor: Family tragedies 510; Visit to Spain 170-171
Humboldt University, East Berlin 24
Hummingbirds: The Nectar Connection. By Paul W. Ewald. Feb., 223-227
Commensal relationship with mites 226
Enemies 224
Pollinators **222,** 223, **223**
Species, number of 223
Territorial behavior 224
Young 224, **224-225**
Humpback whales: ***New Light on the Singing Whales.*** By Roger Payne. Apr., 463-477
Aggression 465, 466, 470, 472
Breaching 468-469, **468-469**
Cows with calves 466, **474-475,** 475, 476, **477**
Escorts, male 470, 476, **477**
Identification techniques 464, 465, 466
Migration 464-465, 466
Name, zoological 463
Protection of 475; Proposals 466
Reproduction cycle 466, 475
Size, average 466, 470
Songs and social sounds 464, 465, 468, 472; Score **464-465**
Stocks intermingling 464, 465
Whaling 465, 475
Hundred Years' War 490, 510-511
Hunting 755; Inuit 382, 385, 389, 392, 394, 397, **399,** 400, 403, overhunting 392, 399; "long hunters" 537, 545; Poisoned arrows 771; Trophy hunting 776, 783, 794
Hunting party: Fontainebleau, forest of, France **150-151**
Hunting rights: Canadian natives 400, 414
Hydroelectric power: Egypt 200, 202; ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418
Hydrogen sulfide: Palau Islands lakes 273, 275, 276
Hydro-Québec: ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418

I

Ice dam, prehistoric: Bursting of 803, 806-807
Ice fishing: Inuit 392
Ice storm: Anyemaqen (peak), Qinghai Province, People's Republic of China **246-247**
Icefall: Himalayas 698, 722, fatalities 722
Idaho: Potatoes 681, 687, 693, processing company **682, 683,** 687, 693; *see also* Palouse Hills
Ieng Sary 622
Igloos 382, **398;** Construction of 391, 392
Ignacio de Mesa Ruiz, Juan 733
Ilan, Taiwan: Children **112-113**
Imatong Mountains, Sudan 354, **376-377**
Imboden, Otis, photographer: ***Goal at the End of the Trail: Santa Fe.*** Mar., 323-345
Immigrants: United States 686, 687, 688-689, 811
Immunology: Leprosy research 827, 828, 830
Impeyan pheasants **716,** 719
Impressionist painting: France 484, 503, 506-507
Incas: *Indians of South America; Archaeology of South America.* Mar. supplement; Potatoes 668, 672, 694; ***The Two Souls of Peru.*** By Harvey Arden. Mar., 284-321
The Incredible Potato. By Robert E. Rhoades. May, 668-694
India: Aid to Kampuchea 585; Trade with Southeast Asia 563, 566
Indian Market: Santa Fe, N. Mex. **329**
Indians of North America: Armadillo hunting 822, 823; ***Goal at the End of the Trail: Santa Fe.*** By William S. Ellis. Mar., 323-345; Land rights 1, 392, 400, 402; Palouse Hills, Idaho-Wash. 806, 807, 814, 817, 818, reservation 811; *see also* Cree Indians; Powhatan
Indians of South America: *Indians of South America; Archaeology of South America.* Mar. supplement; Potatoes 668, 672, **672-673,** 674, **674-675,** 676, 693; ***The Two Souls of Peru.*** By Harvey Arden. Mar., 284-321
Indochina *see* Kampuchea
Ing Pech **601**
Inquisition, Spanish 730, 748
Insect predators: Armadillos 823, 824; Bats 90
Insects: Biting insects: Africa **122-123, 132-133**
International relief organizations: Kampuchea 571, 604, 605, reports 605-606, 622
Inuit: ***Henry Hudson's Changing Bay.*** By Bill Richards. Mar., 380-405
Clothing: Caribou skins 391, **402, 403,** preparing of **388**
Communities 382, 394, 399, 400; Establishment of 382; Housing **388;** Map 385; Population by community 385, 391, 394, 396; Supplies 384
Cultural change 382, 384, **388,** 389, **389,** 400, 402
The dead, disposal of 394
Education: Disadvantages of 402; Schools 394, 396
Employment 390, 394, 396
Fur trade 389, 390, 402
Hunting and fishing 382, 389, 392, 394, **399,** 400, 403; Fishing camps 397; Ice fishing 392; Sea mammals 385, 397, 401; Trapping **402, 403**
Land ownership, concept of 392, 400, 402
Land settlement with Hydro-Québec 400
Language 391, 392
Name, meaning of 382
Nomadic period 382, 389, 391, 403
Political involvement 384; Legislative representative (NWT) **384,** 392, 394; Separation from NWT, proposed 382, 385, 392, 394, mineral resources question 385, 392
Population: Quebec shore 385; Western shore 385, 391; *see also* Communities, *above*
Soapstone carving 397, 400
Social programs 389; Assistance pay 389, 394
Survival skills, traditional 391-392, 402; Efforts to preserve 391, 397, 402
Invalides, Paris, France: Tomb of Napoleon 188, **188**
Iquitos, Peru 312, 316; Population 312; Rubber boom 312, 313
Ireland: Emigration 682, 688, 689; Potato famine 679, 682, 686, 688; Potatoes **669,** 682, 686, **688,** 689
Irineos, Bishop 449
Iron ore: Namibia 786; Western Australia 651, 653
Irrigation: Circular systems 687; Egypt 201, 207, proposed canals 198, 200, 202; Kampuchea 567, 599, 606, ancient system 552, 559, 571, 574; Sinai **420-421, 450,** 453, 456; Sudan **352-353,** 375, 376-377
Isaac, Captain 788
Ishag, Kamala 374-375
Isis (Egyptian goddess) **209**
Islam: Sinai 426-427, 428, 437, 438; Sudan 354, 370; *see also* Mosques
Ismailcebi, Kazim 42
Israel: ***Eternal Sinai.*** By Harvey Arden. Apr., 420-461
Israelites: Red Sea crossing 444; Sinai wanderings 427, 432, 437, 442, 444, 447, 449

Italy: Napoleonic wars 149, 155, 156,157,161
Ith Khlok 589
Ivujivik (Inuit community), Canada 396, 397, 400

J

Jackass penguins **789**
James Bay, and region, Canada: ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418
James Bay hydroelectric development project 399-400
Japan: Balloon launch **512,** 513, 514, **514;** Taiwan occupation 101; Taiwan trade 103
Japanese Everest expedition 722, 724
Jars, earthenware: Bermuda shipwreck 53, 67, **71;** Wolstenholme Towne site, Va. 67, **71**
Jaruzelski, Wojciech Apr. special supplement
Jasna Góra monastery, Częstochowa, Poland: Papal visit (1979) Apr. special supplement
Jayavarman VII, King (Khmer Empire) 562, 566, 583, 585, 586; Royal bath 570-571
Jellyfish: Palau Islands lakes 264, **264-266,** 272, **276, 277,** 282
Jellyfish Lake, Palau Islands: Stratified water **274-275**
Jena, Battle of (1806) 149, 163
Jerusalem: Sadat's visit (1977) 444, 452
Jewelry: Bedouin **422,** coins **439;** Gologs **250, 259;** Pokot adornment 122, 126, **126, 127,** 134, 140; Sahara tribe: Gold nose pendant **204;** *Santa Margarita* salvage 233, **237,** 239, gold chains **228-229,** 233, **234-235, 237,** 242, 243
Jiménez, Arturo 823
Joan of Arc 481, 484, 490, 506, 507, 510
Jogging: Cottesloe Beach, Australia **660;** Tainan, Taiwan 110, 111, 119
John Paul II, Pope 419; *The Face and Faith of Poland.* Apr. special supplement
Johnson, Eula 802-803, 818
Jonglei Canal project, Sudan **352-353,** 376-377
Jordan, Robert 238, 239, 240
Joséphine, Empress (France) 142, 149, 150, 153, 157, 165, 169; Coronation **144-146,** 162; Portrait of **169;** Residence 165, 168, **168-169**
Joubert, Eugene 783
Joyce, William, and family 682, **688-689**
Judaism: Sinai history 427, 437
Jugs: Potato-shaped **674;** Stoneware 53
Jumièges (monastery ruins), France 510
Jurasz, Charles and Virginia 464

K

Kagan, Richard L. 738
Kaibakku Lake, Palau Islands: Marine life 278; Tunnel 278, dye indicating **272**
Kaiser Wilhelm Church, West Berlin: Ruins of 38, **49**
Kakulas, Byron 663
Kala Pattar (peak), Himalayas 704, 719
Kalahari Desert, Africa 762, 771
Kalangula, Peter 775
Kalgoorlie, Australia 643
Kalkfeld, Namibia: Game farm 783, **794-795**
Kameraz, Abraham 672
Kami Tenzing 720
Kampuchea 141; ***Kampuchea Wakens From a Nightmare.*** By Peter T. White. May, 590-623; ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Alliance with China 611, 616, 622
Buddhism succeeding Hinduism 566, 586-587
Classical dance 549, 589, **595**
Economy: Black market 552, 585, 592, 594, 605, 618; Infrastructure ruined 599, 604, 619
Ethnic groups 598, 610 *see also* Khmer, *outlined*
Famine 604, 605, 606, 607
Flag **598**
French protectorate 581, 589, 598, 611
Government leaders: *see* Lon Nol; Pol Pot; Vietnamese-backed *see* Heng Samrin
Maps 567, 598
Mass graves 549, 599, 602, **602-603**
Population 598, 605
Refugees in Thai camps 549, 598; Number of 622, map showing 598
Relief sources 567, 594, 604, 605, 622
Rice cultivation 567, 590, **590-591,** 592, 594, 604, problems 605-606, **606-607**
Vietnamese occupation: Government 597, 602, 604, 605, 608, 610, 611-612, 613-614, 618, 622; Invasion (1979) 549, 611, 614; Soldiers 550, **550, 565, 572, 575,** 581, 592, 594, 612, 617, number of 549, 597, 611, unarmed **605,** 611
Water supply: Control 567, 574, lack of 598, 605, 606, **606-607,** 612
see also Angkor; Angkor Wat; Khmer; Khmer Rouge; Phnom Penh, *all outlined*
Kangaroo paw (flower) 649, **649**
Kania, Stanisław Apr. special supplement
Kaohsiung, Taiwan **92-93,** 99, 101, 111; Electronics plant **102-103**
Kaokoland, Namibia **756-757,** 784, 786, 787-788, 793
Karakul sheep **776**
Karl-Marx-Allee, East Berlin: May Day parade 32-33
Karlowa, Ernst 784, 786, 787
Karsts: Palau Islands 271
Katima Mulilo, Namibia 782
Katowice, Poland: Mural Apr. special supplement
Katutura, Namibia 765, 766-767
Kavango (tribal district), Namibia 775, 780
Kavangos 762, 772-773, 780, 782
Kawahlas 371, 374, 378
Keewatin (NWT district), Canada 391, 392, 394, 400 *see also* Barren Grounds
Kemal el-Din, Prince (Egypt): Western Desert exploration 199, 216; Route, map showing 201
Kenana Sugar Company Limited: Sudan 356, **358-359,** 376
Kendrick, Idaho: Flash flood 803
Kentucky: ***Home to the Heart of Kentucky.*** By Nadine Brewer. Apr., 522-546
Kenya: ***The Threatened Ways of Kenya's Pokot People.*** By Elizabeth L. Meyerhoff. Jan., 120-140
Kern, Steve 86
Kharga Oasis, Egypt 200, 202, **203,** 208, 211, 220; Desert **215, 216-217,** 220, ruins in **196-197**
Khartoum, Sudan 354, **360-361,** 363, 374
Khieu Samphan 622
Khmer (people): ***Kampuchea Wakens From a Nightmare.*** By Peter T. White. May, 590-623; ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Art 579, 584, 585; Bas-reliefs 556, 557, 560, 562, 563-565, **563-565, 569,** 570, **580, 588,** 589, damaged 548, **548,** 550, 566, 570, 581, 584, 589, **589;** Classical dance 549, 589, **595;** Statues **586-587, 594,** damaged 552, **553, 570,** 571, **576-577,** 584, 585
Customs and lore 548, 559-560, 611, 617
Dress: Code (1975-1978) 592, 614, 622; Headwear, traditional **587,** 590, **590-591, 592-593, 615**
Genocide (1975-1979): Death toll 549, 590, 592, 605
Refugees in Thai camps 549, 598, 622; Map showing 598
Religion: Magic 571, 587, vandalism **570,** 571, 579; Snake worship 559-560, 564; Temples 567 *see also* Angkor, *outlined; see also* Buddhism; Hinduism
Royalty 549, 552, 554, 559-560, 562, 563, 566, 570-571, 574,

579, 581, 583, 585, 586, 589, 594, 622
Youth, Communist **608,** 614, 616 *see also* Khmer Rouge, *outlined*
Khmer Empire: ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Khmer Rouge: ***Kampuchea Wakens From a Nightmare.*** By Peter T. White. May, 590-623; ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Alliance with China 611, 616, 622
Atrocities 548-549, 569, 570, 574, 598, 600, 601, 610-611, 622; Death toll 549, 590, 592, 605; Mass graves 549, 599, 602, **602-603;** Museum exhibiting **600-601,** 602
Bans: Cultural 594, 598, 604, 606; Economic 599, 619
Collectivization 599, 611
Departure (1978-1979) 549, 581, 590, 598, 611, 614, 622
Dress code 592, 614, 622
Guerrillas 549, 570, 571, 581, 584, 592, 598, 601, 604, 617, 622; Number of 597, 611
Leader *see* Pol Pot
Leader, nominal (1982) 622
Migrations, forced 598, 599, 606-607, 608
Political prisoners **600-601,** execution of 600, 601
UN representation 550, 612, 616, 622
Work camps 598, 599, 604
Khumbila (peak), Himalayas 698
Khumbu Glacier, Himalayas **700-701,** 722
Khumbu Icefall, Himalayas 698, 722; Fatalities 722
Khumjung, Nepal 702, **703**
Kimberley (region), Australia 643
Kincaid, Don, photographer: ***Treasure From the Ghost Galleon:* Santa Margarita.** Feb., 228-243
King, Bruce 336
King, Frank **811**
Kings Park, Perth, Australia 649, 654; Memorial **666-667**
Kirchheimer, Waldemar F. 828
Klein, Dieter 24
Klingelhofer, Eric 60
Knebel, Andreas **23**
Knef, Hildegard 36
Knight, James 404
Knutson, Harold A., photographer: ***Nomads of China's West.*** Feb., 244-263
Kohl, Larry: ***Quebec's Northern Dynamo.*** Mar., 406-418
Kompong Cham, Kampuchea 599, 606, 614
Kompong Thom, Kampuchea 622; Forced evacuation (1975) 599
Köpenick (district), East Berlin 17, 31; Youth center 24, **28-29**
Koror, Belau 272
Kosanke, Klaus-Peter 24, 25
Kościuszko, Tadeusz Apr. special supplement
Kraals: Namibia 755, **760-761,** 768-769, 780
Krack, Erhard 4
Kraków, Poland 419, Apr. special supplement
Krenn, Peter 66, 67
Kreuzberg (district), West Berlin **6-7, 37, 39,** 41, 42
Krom, Ben **816**
Kubluitok, Pelagie **388**
Kulen Hills, Kampuchea 552, 566
Kumbum Monastery, near Xining, China **256-257**
Kunde, Nepal: Hospital 715; Prayer stones near **722-723**
Kuomintang 98, 101, 113, 114, 115; Meeting **100;** Party chairman *see* Chiang Ching-kuo; Chiang Kai-shek
Kurfürstendamm (street), West Berlin 38, 40, 42, **46-47, 48-49**
Kush (ancient kingdom): Capital **348-349,** 377, 378
Kutuzov, Marshal 173, 174; Bust of **174**
Kwaluudhi Ovambos (tribe): Chief 769
Kwando River, Namibia 780
Kwinana, Australia: Industrial park 641, 643, 654, wheat exports 643, **658,** 659; Refineries 653

L

LA 1 and LA 2 (hydroelectric sites), Quebec, Canada: Scheduled construction 411
LG 1 (hydroelectric site), La Grande River, Canada: Scheduled construction 410
LG 2 (hydroelectric site), La Grande River, Canada: Construction 408, 409, completion date 410; Dam 407, 411; Power plant **408-409,** 410, electronic maintenance 415, generators 408, **408,** 410, megawatts 408, 410; Reservoir 407, 408, 410, 411, 413, spillway **406-407,** 409, **409;** Transmission lines **418,** map 410-411
LG 3 and LG 4 (hydroelectric sites), La Grande River, Canada 411, 412; Dam and reservoir 411, **412-413;** Power plant **413,** 415; Scheduled completion 410, 411
L. S. B. Leakey Foundation: Grants: Pokot study 122
Lace making: Toledo Province, Spain 734
"Lady in a Fur Wrap" (El Greco) 748
Lagartera, Spain: Embroidery 734
La Grande Complex (hydroelectric sites), Quebec, Canada: ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418
Construction materials 409, 412
Cost 409, 414, 418
Dams and dikes 407, 409, 411, **412-413,** 413; Construction materials 412-413; Map 410-411; Phase one mileage 412
Economics 407, 418
Megawatts 410-411; Sale of 407, 410, 418; Ultimate number 408, 411
Power plants 408, **408-409,** 410-411, **413,** 415, 418
Relocation of people 414-415
Reservoirs 407, 408, 409, 411, **412-413,** 414; Largest 416; Spillways **406-407,** 409, **409, 412**
Rivers dammed or diverted 407, 410, 411, 413, 416; Basin boundaries affected 410, 411; Before diversion and after **412, 413;** Map 410-411
Schedule 408, 409, 410-411, 418
Transmission lines 418, **418;** Map 410-411
Wildlife, threat to 416
Work force 407, **408-409,** 415; Earnings and benefits 409, 415; Medical services 416; Natives 415
La Grande River, Canada 399; ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418
Lahaina Restoration Foundation: Study grant: Humpback whale 466
La Haye Sainte (farmstead), Waterloo, Belgium **184**
Lakshmi (Hindu goddess): Bas-relief **580**
La Mancha (region), Spain: Pottery making 734; Windmills **752-753;** Wines 748
Land ownership: American natives' concept of 1, 392, 400, 402
Land use: Energy development: Canada 399-400, 414, 416, 418; Egypt 202, map 200; Waterways development: Sudan **352-353,** 376-377; *see also* Desert farming; National parks
Land-use legislation: Kentucky 531
Landeszeughaus museum, Graz, Austria **64-65,** 66, 67; Conservator **66**
La Roche-Guyon Château, France **498-499;** Duchess of **499**
Larue County, Ky.: ***Home to the Heart of Kentucky.*** By Nadine Brewer. Apr., 522-546
Latah County, Idaho *see* Palouse Hills
Latendorf, Otto: Fish caught by **45**
Latkes, potato 730, 749
Lavenu, Jean **502**
La Vereda (subdivision), Santa Fe, N. Mex. 340, 344
Lavies, Bianca, photographer: ***The Astonishing Armadillo.*** June, 820-830
Layton, Gibbs 537
Layton, Robert 37
Lead seals: German textiles **59**
Lead window mount: Inscription 77
Leakey, Louis S. B. 122, 131

Le Cesle, Daniel 481
Legion of Honor, French: Established by Napoleon I 161; Medals **161;** School for members' daughters **160**
Le Havre, France 481, 504, **508-509, 511**
Leipzig, Battle of (1813) *see* Battle of the Nations
Lenin Square, East Berlin **16**
Leningrad, U.S.S.R.: Potato stock guarded during World War II 672
Lentil growing: Palouse Hills, Idaho-Wash. 801, 807, 812
Leonowens, Anna 589
Leopold, Aldo 631, 636
Le Petit Andely, France **500-501**
Leprosy: Research: ***The Astonishing Armadillo.*** By Eleanor E. Storrs. June, 820-830; Treatment in Sudan 362
Lesseps, Ferdinand de 438
Lette, François **416**
Levathes, Louise E.: ***Toledo—El Greco's Spain Lives On.*** June, 726-753
Lhotse (peak), Himalayas **700-701,** 710, 711, 722
Libya: Aggression in North Africa 356, 357; Desert 198, 210; Routes 199; Underground water 220; World War II 199
Lichtenberg (district), East Berlin: School 24
Lifesaving teams, women: Perth, Australia **643**
Lim, Bert J. 105
Lima, Peru: Nutrition research institute **678, 679;** Potato research center 672, 684-685, 693-694, director general **686,** 693-694; ***The Two Souls of Peru.*** By Harvey Arden. Mar., 284-321
Limonest, France 686, **690-691**
Lin Li-huan 107
Lin Te-wan 101
Lincoln, Abraham: Birthplace 529, 534; Statue **534**
Little, Leo 306-307
Lobuche Camp, Sagarmatha National Park, Nepal **718-719,** 722
Lockridge, Australia: Aboriginals 659, 662
Lodi, Italy 156; Battle (1796) 156
Loess: Palouse Hills, Idaho-Wash. 806, 807
Lon Nol 589, 594, 598, 606, 619
"long hunters": Kentucky settlers 537, 545
Longwood (house), St. Helena (island), Atlantic Ocean 185, 186; Napoleon's quarters **187**
López, Richard 734
López Luengos, Fernando **735**
Loretto, Estella **342**
Los Cigarrales de Toledo (Tirso de Molina) 751
Lotuko (tribespeople) 354
Louis XVI, King (France) 686-687
Louisville, Ky. 525, 526, 528, 545
Louttit, Alice, and grandson **414**
Louw, Graham and Yvonne **782**
Lovers, tragic: French tradition 500-501; Toledo, Spain 748
Low-rider automobile: Santa Fe, N. Mex. **335**
Lowe, Sir Hudson 185, 186
Lowe, Russell 539
Lübars (district), West Berlin 38, 41; Wheat harvest **44**
Lublin, Poland: Coal delivery Apr. special supplement
Lüderitz, Adolf 786
Lüderitz, Namibia 757, **786-787,** 793, 796; Diamond mine **790,** 793
Lugo, Bernardino de 231, 232, 233, 238, 243
Lukla, Nepal: Airfield 702, 704
Lumber camps: Sudan **376-377**
Lumber industry (1800s): United States 539
Lumber mill, Potlatch, Idaho 818
Luscombe, Tony 303, 305
Lutambo, Felix 782
Lutheran faith: East Germany 21
Lynn, Rob 659
Lynxes: Caracal lynx **776**
Lyon, Eugene: ***Treasure From the Ghost Galleon:*** **Santa Margarita.** Feb., 228-243

M

McAuliffe, Claire 704, 711
McCarry, Charles: ***The Civilizing Seine.*** Apr., 478-511
McGowan, John and Georgine **322**
McGreevy, Helen 814, 818
Machu Picchu, Peru 299, **300-301,** 307, 310
McHugh, Bill 211, 216
McMahan, Thomas, and son 537
Madrid, Spain 728, 729, 730, 734
Mahdists 365, 374
Maine: Potatoes 681, 687, 693, festival 687, queen **692**
Maize: Namibia 768, 780, 782, 788; Pokot people 123, **125,** 130
Malaria: Kampuchea 605, 612
Malmaison (château), near Paris, France 165, 168, **168-169**
Malnutrition: Potato prescription 679, 684-685, 693-694
Mamgark, Andy, and son **402-403**
Mamluk horsemen: Battle of the Pyramids 157, 159
Mammals *see* Armadillos; Frog-eating bat; Humpback whales; Quokkas
Mammoth Cave National Park, Ky. 525, 537
Mani Rimdu festival: Nepal **708, 709**
Manitoba (province), Canada 387; ***Western Grebes: The Birds That Walk on Water.*** By Gary L. Nuechterlein. May, 624-637; *see also* Churchill
Manjera, Mandanda **791**
Manno, Gene D. 539, 542
Manzala, Lake, Sinai Peninsula, Egypt: Exodus theory 447
Maps:
Anyemaqen (peak), People's Republic of China 246
Armadillo range, U. S. 827
Australia, locating Perth 642
Belau, Republic of 269
Berlin, East and West 8-9
California coast: Balloon landing 521
Canada: Hudson Bay, and region 385, 410-411
Caribbean region: Trade routes of the Spanish fleets 230
Central and South America: Range of frog-eating bat 81
China, Western, showing route of Anyemaqen climbers and Golog territory 246-247
Egypt: Sinai Peninsula 428, 429; Western Desert 200-201
Europe: Napoleon's Europe 147-149
France: Canal-river network 484
Himalayas (mountains), Asia: Relief map 699
Hudson Bay, and region, Canada 385, 410-411
Indians of South America; Archaeology of South America. Mar. supplement
Kampuchea 598; Angkor temple complex 559-562, 567
Kentucky, central 529
Kenya-Uganda: Pokot tribe 123
La Grande Complex: Quebec (province), Canada 410-411
Namibia 764-765
Nepal: Khumbu district: Relief map 699
North America: Western grebe breeding range 629
Pacific Ocean: Balloon crossing 514-515
Palau Islands, Pacific Ocean 269
Palouse Hills, Idaho-Wash. 803
Perth, Australia 642
Peru 292
Pokot tribal lands, Kenya-Uganda 123
Poland: *The Face and Faith of Poland.* Apr. special supplement
Quebec (province), Canada: La Grande Complex (hydroelectric sites) 410-411
Sagarmatha National Park, Nepal 699
The Seine (river), France 484-485
Sinai Peninsula, Egypt 429; Israeli occupation and withdrawal 428
South America: *Indians of South America; Archaeology of South America.* Mar. supplement
Spanish colonies in the Americas 230-231
Sudan 357
Taiwan 98
Toledo, Spain 728
Virginia coast, locating Carter's Grove (Wolstenholme Towne site) 54

World, locating sources of evidence about Wolstenholme Towne site, Va. 57-59
Marañón, Gregorio: Country retreat 753
Marble Island, Canada 404
Marchal, Henri 570
Marcilly, France 484, 503
Marengo, Battle of (1800) 155, 161
Marías, Fernando 734, 738, 745
Marie Louise, Empress (France) 165, 169, 170
Mariental, Namibia: SWAPO supporters **769**
Marijuana farming: Kentucky 536-537
Marine biology: Ras Muhammad coral reefs, Red Sea 459, 461; ***Strange World of Palau's Salt Lakes.*** By William M. Hamner. Feb., 264-282
Marine fossils: Western Desert, Egypt **215**
Maritz, Frans **776**
Mark, Davidi 400
Märkisches Viertel (satellite town), West Berlin **40-41**
Marler, Kelley **817**
Marquesas Keys, Fla.: ***Treasure From the Ghost Galleon:*** **Santa Margarita.** By Eugene Lyon. Feb., 228-243
Marriage customs: European barge society 494; Himbas 775; Pokot people 133, 134, 138, 140; *see also* Weddings
Marshall Plan: West Berlin restoration 17
Marshlands *see* Delta Marsh, Manitoba, Canada; The Sudd, Sudan
Marshy Point, Manitoba, Canada: Western grebes 631
Marsupials *see* Quokkas
Martin, William 333
Martineau, Gilbert 185-186
Martínez, Gloria 734
Martins, Leon 780
Martin's Hundred plantation, Va.: ***New Clues to an Old Mystery.*** By Ivor Noël Hume. Jan., 53-77
"Martyrdom of St. Maurice" (El Greco) 745
Marzahn (district), East Berlin: Housing project 17, 20
Marzipan: Toledo, Spain 748, **749**
Masks: Gold burial mask **283;** Rope masks: Pokot initiates **136-137;** Tibetan Buddhist symbolism **708**
Mason, Marcel **389,** 404
Mata, Rodolfo 647, 651
Matadors: Peru **298-299**
Mathewson, R. Duncan 242, **243**
Matsu (Chinese goddess): Birthday celebration **94-95**
Matsu (island), Taiwan-held 1; Military bases 99, 116
Maui (island), Hawaii: ***New Light on the Singing Whales.*** By Roger Payne. Apr., 463-477
Maui Whale Watchers: Study grant: Humpback whales 466
Max-Planck Institute for Biology, Tübingen, West Germany: Genetic engineering 693
May Day: East Berlin **14-15,** 32-33
mazamorra (potato dessert) 693
Medical research: Leprosy 827, **827,** 828, 830; Muscle regeneration 655, 663, 666
Medicine and health: Altitude sickness 720, 722; Flying doctor service 666; *see also* Child health care
Medicine men: Australian Aboriginals 662; Peruvian Indians 313, 316; Pueblo Indians 336; Witch doctors: Ovambo 769
Medina, Arthur **334;** Low-rider automobile **335**
Medusae (jellyfish): Palau Islands 264, **264-266**
Mehedi, Sheikh 198, 199, 220
Mehrtens, William O. 240
Mekong (river and delta), Southeast Asia 605, 606, 611
Melchers, Georg 693
Melián, Francisco Nuñez 236, 242, 243
Mendler, Georg **48**
Menores, Cigarral de, Toledo, Spain 753
Meroe (ancient Kushite capital) **348-349,** 377, 378
Mescalero Apache girl: New Mexico School for the Deaf **337**
Meteorology: Aurora study 384, observation bubble **405**
Metukercheuas Uet (lake), Eil Malk (island), Palau Islands **268-269,** 278, 281
Mexico: Armadillos 822-823
Meyerhoff, Elizabeth L. **130,** 131, **136;** ***The Threatened Ways of Kenya's Pokot People.*** Jan., 120-140
Michelangelo 729, 739
Migration: Disruptions 353, 376-377; Humpback whales 464-465, 466; Murres 399; Western grebes 629
Military parades: Angkor bas-relief 581, 584; Berlin **2-3,** cover; Egypt 430, 452, 454-455; Peru **290;** Taiwan **116-117**
Miller, Peter 419; *The Face and Faith of Poland.* Apr. special supplement
Miłosz, Czesław 419; *The Face and Faith of Poland.* Apr. special supplement
Milwaukee Public Museum: Bat study: ***The Amazing Frog-Eating Bat.*** By Merlin D. Tuttle. Jan., 78-91
Mineral deposits: Australia 651, 653, 655; Hudson Bay region, Canada 384, 385, 392, distribution map 385, uranium lode discovered 402; Namibia 757, 762, 782, 784, 788
Miners: Australia 651, 653; Poland Apr. special supplement and cover
Mingma Norbu 702, **702,** 715-716, 724
Mining: Amethysts 784; Diamonds 653, 758-759, **758-759,** 764, 790, **790-791,** 796-797; Iron 651, 653, nuclear explosion technique, proposed 651; Rubies 605; Uranium 653, 782, 788
Miraflores (neighborhood), Lima, Peru 294, 296-297
Miranda, Rufino 748-749
Missionaries: Kampuchea 579; Namibia 775
Missoula, Lake (extinct), North America 803, 806-807
Mith Yon **616-617**
Mitla Pass, Sinai Peninsula: Arab-Israeli war (1973) 444
Mittelstedt, Annie 46, 48
Mitterrand, François 498, 503
Moh Han-chu 109
Mohammed Ahmed "Mahdi" 374
Mohammed Ali 438
Molinar, Demosthenes "Mo" 243
Monasteries: China **256-257;** Kampuchea 566, 589, 622; Nepal 698, **708, 709,** 719, 720, 724; Poland Apr. special supplement; Sinai Peninsula **436, 437,** 449; Toledo, Spain 734, 745
Mondari women **366,** Mar. cover
Monet, Claude 484, 503, 506-507; Giverny gardens **502-503;** Home **502**
Moneymaker, Roy **811**
Monkey god (Hindu) 579; Bas-relief 563, **565**
Monsoon season: Indian subcontinent 707, 725; Kampuchea 552, 571, 598
Monstrance, jeweled 729, 730, **746**
Moonshiners: Kentucky 543-544
Moore, Beatrice **800**
Moore, George Curtis 356
Moore, Sam, and family 539
Moore, Vic 812
Moors: Toledo, Spain 728, 733, 735, 745, 750; Country houses 749-750; Expulsion 748
Moquino, Joseph 336
Morris, Gary 801-802, 814
Mortars and pestles: *Santa Margarita* salvage **238**
Moscow, Idaho: Appaloosa Horse Club 806; Autumn maples **808-809;** Ballet company 807, 814, ballerina **815;** Dry-pea and lentil capital of the world 807; Farms near 801, 802, **810;** Symphony orchestra 807; University 807, women's rugby team **813**
Moscow, U.S.S.R.: French occupation of 174; Red Square **175**
Moses: Red Sea crossing 444; Sinai Peninsula wanderings 426, 437, 438, 444, 447, 449
Moshavs: Sinai Peninsula **445, 450, 452-453,** 456
Mosques: El Qasr, Egypt **192-193;** Gebel Musa, Sinai Peninsula, Egypt 437, prayer **426-427;** Khartoum, Sudan **360-361**
Motorcycle carts: Kampuchea **605, 608-609, 610,** 614
Motorcycle plant: West Berlin **43**

Mount Pleasant (estate), St. Helena (island), Atlantic Ocean **187**
Mountain climbing: Anyemaqen (peak), China 244, **246-247**; Everest (mountain), China-Nepal 698, 699, 701, 704, 711-712, 722
Movie making: Eaves ranch, Santa Fe, N. Mex. 336
Möwe Bay, Namibia 784
Mozarabs: Toledo, Spain 729
Mubarak, Hosni 356
Mud headdress: Pokot men **132**
Mud-puddle frogs: ***The Amazing Frog-Eating Bat.*** By Merlin D. Tuttle. Jan., 78-91
Mud slides: Palouse Hills, Idaho-Wash. 812, 814
Mudejar architecture: Toledo, Spain 735, 745
Mudge, Piet 780, 782
Mules: Kentucky 525, **542**
Mummification: Egypt 210, camel, naturally mummified 211, **211**
Munich, Germany: World War II bombing 507
Murat, Joachim **145,** 168, 188
Muro, Paulina **296**
Murres 397, 399
Musa, Gebel, Sinai Peninsula, Egypt: Chapel 437; Moses 426, 437, 449; Mosque 437, prayer **426-427**; Sadat's visit 452
Muscatine, Leonard 282
Muscle regeneration: Vitamin E 655, 663, 666
Muscular dystrophy: Quokkas used in research 655, 663, 666
Musée de l'Armée, Paris, France: Curator **156**
Museums: Arms and armor **64-65, 66,** 67, 490, Napoleonic **156,** 490; Perth, Australia 657, Aboriginal sculpture **663**; Potato 679; Number of, in world 679
Music synthesizers 333
Musical instruments: Didgeridoo **664-665**; Dulcimers, handmade 531; Flute **422**; Guitars **20,** 606; Violin **656**
Musk deer: Nepal 716, 719, poaching of 720
Musk oil: Black market 720
Muskeg Express (Canadian train) 381, 390
Muskets, matchlock: Landeszeughaus museum, Graz, Austria **64-65,** 67, scourers **66,** 67
Muskrat-house blind **628, 629,** 630
Muslim countries: Importation of live sheep 644, 646-647
Muslims: Sinai Peninsula, Egypt 424-425, 426-427, **426-427,** 428, 438; *see also* Moors
Mussels: Palau Islands lakes **273, 280-281**
Mut, Simon 363, 367
Mut, Egypt: Salt wasteland **202**
Muyongo, A. M. 782

N

Naama Bay, Sinai Peninsula, Egypt: Resort 459, **460-461**
Nabta, Gebel (mountain), Egypt: Neolithic village near 217
Nagashima, Japan: Balloon launching 514
Naluiyuk, Moses 397
Namas (people): Namibia 762, 763, 768
Nambe (Indian pueblo), N. Mex. 326
Namche Bazar, Nepal 698, 704, **706-707,** 712, 719; Economy 702, 704, 707, 712
Namib Desert, Namibia 756-757, **756-757,** 762, **796-797**; Cave paintings **792-793**; Gemsbok **796**
Namib-Naukluft Park, Namibia: Dunes 793
Namibia: Nearly a Nation? By Bryan Hodgson. June, 755-797
Apartheid repealed 763, 765, 766
Capital *see* Windhoek
Contract workers 775, **790-791**
Deserts 755, 756-757, **756-757,** 762, 771, 787, **796-797**
Diamonds 758-759, 762, 764, 765, 784, 790, **790,** 793, 796-797; Mines **758-759,** 764, 790, **790-791,** 796-797; Prospectors 784, 787; Restricted area **758-759,** 764, 793
Elections 762, 791, 793
Ethnic groups 755, 762, 763, 765, 768, 788 *see also* Bushmen; Coloureds; German settlers; Hereros; Himbas; Kavangos; Ovambos
Facts and figures 765
Farming 760, 768, 772-773, 780, 782, 788
Fishing industry destroyed 764, 793, 796
Game management 776, 783, 794; Game farms 776, 783, 794, **794-795**
Government 762, 765, 791; Ethnic groups 762, 788
Guerrillas *see* SWAPO
History 755, 765, 775, 782; German colony 755, 757, 765, 767-768, 782, 786, 791, 793; Herero uprisings 755, 765, 767-768
Independence negotiations 755, 762, 765, 797
Languages 762, 763, 765, 768, 775, 782, 788
Maps 764-765; Population distribution 765
Name meaning 762
Parks 778-779, **778-779,** 780, 782-783, 784, 793
Political parties *see* Democratic Turnhalle Alliance; SWAPO; SWAPO-D
Population 755, 765; Density 765
Segregation policies 765, 766, 767, 775
South African control 755, 765; Defense forces 755, **762-763,** 771, **771**
Tribal districts 765, 767, 768-769, 775, 782-783, 788
Uranium 762, 765; Mines 782, 788
Wildlife **756-757,** 762, 768, 772, 776, **776, 777, 778-779,** 779, 782, 783, 784, 793, **794, 795, 796,** cover *see also* Game management, *above*
Namutoni, Namibia: Tourists 779
Nanquette, Claude 510
Napoleon I:
Museum 490-491
Napoleon. By John J. Putman. Feb., 142-189
Birth 150; Birthplace **153**
Consul 157; First Consul 157, 162
Death 150, 188; Deathbed sketch **188-189**; Tomb **188**
Education 152, 153
Emperor 162; Coronation 144, **144-146,** 162
Exile: Elba 180; St. Helena 185, 186, quarters **187**
Governmental reforms 161-162
Intellect 142, 149, 152, 163
Marriages: Joséphine 153, 157, 165, 169; Marie Louise 165, 169, 170
Military career 149, 153, 162-163; Egyptian expedition 156-157, 158-159; Italian campaigns 155, 156, 157, 161; Major battles, map 147-149; Russian campaign 171-174, 179, withdrawal 174, **176-177,** 179; *see also* Waterloo
Physical appearance 142, 165
Portraits **143, 179**
Poland campaign Apr. special supplement
Napoleon II 165, **170**; Death chamber **171**
National Aeronautics and Space Administration (NASA): Desert research aid 199, 211
National Gallery of Art, Wash., D. C.: El Greco exhibition 738
NATIONAL GEOGRAPHIC (NGM): Editor 585, 589; Kampuchea coverage 549, 617; Readers' research assistance 1, 53, 57, 67
National Geographic Society: Angkor exhibit: United Nations 551; Grants: Frog-eating bat study 80, humpback whale study 466, Machu Picchu exploration 299, 307, Pokot study 122, western grebe study 629, 630; *Research Reports,* 1971 and 1972 830; Television filming of polar bears 387, **394-395,** 395; Vehicles provided for desert research 210; *see also* Television films
National parks: Namibia 778-779, **778-779,** 780, 782-783, 784, 793; Nepal *see* Sagarmatha National Park
National Science Foundation: Grants: Palau Islands salt lakes study 269, 271

National Seed Storage Laboratory, Fort Collins, Colo. 694
Nationalist Chinese 95, 98, 109, 111, 113, 115, 119
Natron 211
Navarro, Aurelio 289
Nazis: Berlin, Germany 9, 20, 38, 48; Poland Apr. supplement
The Nectar Connection. By Paul W. Ewald. Feb., 223-227
Nedlands, Australia: Tennis club **650-651**
Negev (region), Israel: Air bases built by United States 457
Nelson, Horatio, Lord 149, 159
Nepal: ***Park at the Top of the World: Mount Everest National Park.*** By Rick Ridgeway. June, 704-725; ***Preserving a Mountain Heritage.*** By Sir Edmund Hillary. June, 696-703
Netherlands: Potatoes 670, 686
Netiv ha Asara (moshav), Sinai Peninsula: Farmer 456
Neuville, Marc **156**
Neviot, Sinai Peninsula: Israeli settlements **450-451;** Israeli withdrawal 455
New Clues to an Old Mystery (Virginia's Wolstenholme Towne). By Ivor Noël Hume. Jan., 53-77
New Hampshire: Potatoes introduced 687
New Light on the Singing Whales. By Roger Payne. Apr., 463-477
New Mexico *see* Santa Fe
New Mexico School for the Deaf, Santa Fe **337**
New People: Kampuchea 599, 604, mass graves 602, **602-603**
New Year celebration: Taiwan **108-109**
New York Zoological Society: Study grant: Humpback whale 466
New Zealand: National park collaboration in Nepal 699, 702, 708, 713, 715, 716, 719
Newman, Larry 513, **514, 520**
Ney, Michel: Battle of Waterloo 181, 182-183; Figurine **185**
Nez Perce Indians 806, 814, 818; Encampment 814; Horses 806, 817, 818
Nichols, Susan 340
Nichols, Wayne 340, 344
Nicklin, Flip, photographer: ***New Light on the Singing Whales.*** Apr., 463-477
Night-vision scope, infrared 78, 80, 82; Namibian warfare 768
Nile (river and valley), Africa 198, 202, 207, 208, 220, 354, 374 *see also* White Nile
Nile, Battle of the (1798) 149, 159
Nima Tashi 716
Nimeiri, Gaafar Muhammed 354, 356, **356,** 375
Nkasa Island, Namibia: Park proposed 780, 782-783
Noah, William 402
Nobel prize: Polish recipients *see* Curie, Marie; Miłosz, Czesław
Nocturnal animals *see* Armadillos; Bats
Noel, Cleo A. 356
Noël Hume, Audrey 60, 61, 62, **73**
Noël Hume, Ivor **68, 69;** ***New Clues to an Old Mystery*** (Virginia's Wolstenholme Town). Jan., 53-77
Nomads of China's West. By Galen Rowell. Feb., 244-263
Noodle houses: Taiwan 104
Normandy (region), France 481, 484, 498; Sorcery 510; Traditional costumes **506-507**
Norodom Sihanouk, Prince (Kampuchea) 549, 570, 589, 594, 622
Norrish, John and Joe **811**
North Dakota State University: Potato development 681
Northwest Passage: Search for: Knight expedition (1719) 404
Northwest Territories, Canada 385, 387, 391, 392, 394 *see also* Barren Grounds
Nose pendant, gold: Egypt **204**
Notre Dame Cathedral, Paris, France 491; Coronation of Napoleon **144-146,** 162, 484
Nottale, Michel **509**
Nova Scotia: French settlers 481
Nowa Huta, Poland: Steelworks Apr. special supplement
Nowy Targ, Poland: Papal visit (1979) Apr. special supplement
Nubas 367, **368-369,** 370, 374, 378
Nuclear power plants: Nogent, France 491
Nuechterlein, Gary L.: ***Western Grebes: The Birds That Walk on Water.*** May, 624-637
Nuers: Sudan **350,** 363, 367, 376-377, 378, village **350-351**
Nuestra Señora de Atocha (galleon): ***Treasure from the Ghost Galleon:*** **Santa Margarita.** By Eugene Lyon. Feb., 228-243
Nujoma, Sam 765, 775
Nuns: Toledo, Spain **749**
Nuptse (peak), Himalayas **701,** 711, 722
Nuptse Ridge, Himalayas **718-719**
Nutrition research: ***The Incredible Potato.*** By Robert E. Rhoades. May, 668-694
Nuweiba, Sinai Peninsula, Egypt: Clinic **448**
Nymph: Seine legend 482, 511
Nyoongah Cultural Complex, Gnangara Lake, Australia 662, 664, **664-665**

O

Oak timbers: *Santa Margarita* salvage 232, 239, **240-241,** 242
Oases: Egypt **192-193,** 198, 199, 200, 201, 202, **203, 206-207,** 208, 210, 220; Sinai Peninsula 428, 432, **432,** 447
Observation bubble, meteorological **405**
Ocean Research and Education Society: Humpback whale study 465
Ocher-and-ghee face paint: Pokot women **126**
Oelofse, Jan 776, 783, **794, 795**
Ofira, Egypt 434, 455, 456, 459
Oil: Australia 653; Kentucky 539, 542, map showing fields 529; Sinai Peninsula 428, 430, 434, 438, 448-449, 461
Oil exploration: Canadian north 392; Peru 290, 313, pipeline 291, 293, 313, **313;** The Sudd, Sudan 350, 363, 367, 370; Western Desert, Egypt 198, 220
Okaukuejo, Namibia 779
Okavango River, Angola–Namibia **772-773,** 780
Olive press, ancient: Egypt **206**
Omdurman, Sudan 361, 374
Omega military camp, Namibia: Bushmen 771, **771**
Ondangwa, Namibia: Airfield 768
Ongwediva, Namibia 775; Armless child **780**
Oppenheimer, Ernest 758
Orange River Delta, Namibia-South Africa: Diamonds 758
Oranjemund, Namibia 790, 796; Diamond mining 764
Oregon: Potato harvest 687, 693
Orgaz, Counts of: Spain 730, 742
Orphanages: Kampuchea: Revolutionary Youth **608,** 616
Oshakati, Namibia 768; Schoolchildren **781**
Ostrich June cover; Eggshell 216, **219**
Oświęcim-Brzezinka (Auschwitz), Poland: Papal visit (1979) Apr. special supplement
Our Lady of Częstochowa (Polish icon) Apr. special supplement
Our Lord of the Miracles (procession): Lima, Peru **288,** 295, origin 289
Ovamboland, Namibia 768-769, 775; Terrorist raids 769, 775, 780
Ovambos 755, 760-761, 762, 765, 768-769, 775, 788; Contract workers 775, **790-791;** Kraals 755, 760-761, 768, 769; Population 768; SWAPO troops 755, 761
Oxcarts: Kampuchea **587,** 592, 594, 614, **621**

P

Pacific Islands *see* Maui (island), Hawaii; Palau Islands; Taiwan
Pacific Ocean: Balloon flights: ***First Across the Pacific: The Flight of*** **Double Eagle V.** By Ben L. Abruzzo. Apr., 513-521; Unmanned, Japanese 513
Pack trips: ***Park at the Top of the World: Mount Everest National Park.*** By Rick Ridgeway. June, 704-725; ***Preserving a Mountain Heritage.*** By Sir Edmund Hillary. June, 696-703
Paderewski, Ignacy Apr. special

supplement
Pailin, Kampuchea 605
Palace Hotel, Perth, Australia 662; Preservation 654
Palace of the Governors, Santa Fe, N. Mex 333, 335, 336
Palasthotel, East Berlin 17; Fashion show **25**
Palau Islands, Pacific Ocean: ***Strange World of Palau's Salt Lakes.*** By William M. Hamner. Feb., 264-282
Palmore, Tom **325**; House **324-325**
Paloma, Peru: Age 293, 298
Palouse Falls, Wash.: Alfalfa field near **806-807**
Palouse Hills, Idaho-Wash.: ***A Paradise Called the Palouse.*** By Barbara Austin. June, 798-819
Climate 801, 805
Farming *see* Hill farming, *outlined*
Floods: Prehistoric 803, 806-807; Present-day 802-803
Fur traders 807
Geological history: Floods 803, 807; Volcanism 803, 806
Indians 806, 807, 814, 817, 818
Map 803
Name origin 807
Neighboring 802, 803, 818
Settlers 799, 802, 803, 806, 811, 814, 818
Soil: Depth 802, 818; Fertility 798-799, 801, 802, 805, 807, 812, 814, 818; Wind-deposited silt 803, 806, 812
Volcanic ash **806-807**, effects of 801, 802, 807
Palouse Indians 806, 807, 814
Pan American Health Organization: Leprosy research 830
Panama: ***The Amazing Frog-Eating Bat.*** By Merlin D. Tuttle. Jan., 78-91
Pangboche, Nepal 698
Pankow (district), East Berlin 17
Parades *see* Military parades
A Paradise Called the Palouse. By Barbara Austin. June, 798-819
Paris, France: ***The Civilizing Seine.*** By Charles McCarry. Apr., 478-511
Park at the Top of the World: Mount Everest National Park. By Rick Ridgeway. June, 704-725
Parmentier, Antoine-Auguste 686-687, 691
Parot, Raymond 686
Passover observances: Toledo, Spain 749
Paucartambo Valley, Peru: Potatoes 672
Pavlovsk, U.S.S.R.: Potato-plot experiment station 672
Payne, Katy 464, 465
Payne, Roger: ***New Light on the Singing Whales.*** Apr., 463-477
Pea growing: Palouse Hills, Idaho-Wash. 807
Peanuts: Namibia 780, 782
Peikang, Taiwan: Religious celebration **94-95**
Penghu islands, Taiwan-held **114-115**, 115
Penguins: Halifax Island, Namibia **789**
Pérez de Cuéllar, Javier **306**
Pérignon, Dom Pierre 487
Perkins, Elam 536-537
Perkins, James A. 814
Perkins House, Colfax, Wash. **814**; Restoration 814
Permafrost: The dead, disposal of 394; Timbers preserved by **396**
Perth, Australia: ***Perth—Fair Winds and Full Sails.*** By Thomas J. Abercrombie. May, 638-667
Aboriginals 643, 659, 662, 664, **664-665**; Population 664; Sculpture **663**; Social problems 659, 662, 664
The arts **656**, 657, **657**
Beaches 642, **660-661**, 662, 663
History 642-643, 654; Founding 642
Industrial park *see* Kwinana
Isolation 638, 642, 666
Map 642
Population 638, 642
Port *see* Fremantle
Solar energy 662
Sports 651, 655, 659; Australian Rules football 655, 659; Sailing 638, **638-639**, 659; Tennis **650-651**
Perth Mint, Perth, Australia 653
Peru:
Indians of South America: Archaeology of South America. Mar. supplement
Potatoes 668, 670, **670-671**, 672, **673-675**, 676, 693-694
Silver trade, 17th-century 231, 232
The Two Souls of Peru. By Harvey Arden. Mar., 284-321
Archaeological finds 283, 293, 298, 299, **300-301**, 307, 310
Art: Cocaine-smuggling ruse **312**; Theft of 283, 298, 303
Capital *see* Lima
Copper 290, 293
Deserts 289, 293, 298, 303, **314-315**
Earthquakes 289, 293, 303, 304, 305-306; Predictions 289, 293, 297, 305
Facts and figures 292-293
Fishing industry 290, 303, 312
Flag **293**
Foreign relations 290, 291, 313; Trade 283, 293, 312, 313
Gold mining 293, 306, 307; Mining town **320-321**
Government 289-291, 293-294; Coups 289-291
Income distribution 290, 310-311
Indians **284-285**, 292, 293, 294, 298, 308, 310, 311, **311**, **318-319**, 319, 320
Jungle 306-307, 312, 313, 321
Land distribution: Reforms 290, 309
Map 292
Oil 290, 313; Pipeline 291, 293, 313, **313**
Poverty 310-311, 319; Shantytowns 293-294
President *see* Belaunde Terry, Fernando
Religion 292, 306, 312; Processions **288**, 289, 295, 303, **304-305**
Spain: Conquest by 287, 293, 294-295, 298, 299; Heritage 289, **298-299**, 320; *see also* Religion, *above*
Peru (Humboldt) Current, South Pacific Ocean 303, 314; Map showing 292
Petroglyphs: Egypt 216-217; Namibia **792-793**
Petzold, Hans-Günter 30-31
Pharmacologists, marine: Palau Islands 281
Pheasants, Impeyan **716**, 719
Pheriche, Nepal 720
Philip II, King (Spain): Court moved to Madrid 728, 729; Patronage sought by El Greco 739, 741, 745
Philippines: Potato growing 684, **684-685**, **686**, 694
Phimeanakas (temple), Angkor, Kampuchea **559**, 559-560, **561**
Phnom Bakheng (temple), Angkor, Kampuchea **559-560**, 560, **561**, 566
Phnom Penh, Kampuchea 565, 585; ***Kampuchea Wakens From a Nightmare.*** By Peter T. White. May, 590-623
Evacuation (1975) 599, 606-607, 608
Khmer Rouge occupation 599, 606-607
Population (1975) 608; (1981) 608, 614
School of Fine Arts: Dance **595**; Sculpture **594**
Vietnamese occupation (1979) 611, 613, 614
Phorcha, Nepal **710-711**
Photo supplement: *The Face and Faith of Poland.* Apr. special supplement
Photography: Humpback whale identification and tracking 464, 465
Photomosaic: *Santa Margarita* shipwreck site 242, **243**
Pich Keo 570, **570**, 571, 579, 581, 585, 589
Pilbara region, Australia: Iron ore 651, 653
Pioneer Women's Memorial, Kings Park, Perth, Australia **666-667**
Pioneers: Kentucky 537, 545, 546; Palouse Hills, Idaho-Wash. 779, 802, 803, 806, 811, 814, 818
Pipes, tobacco: 17th-century shipwreck 67, **70**
Pius VII, Pope: Coronation of Napoleon **144**, **146**
Pizarro, Francisco 287, 293, 294,

298, 299, 307
Plankton: Palau Islands lakes **274**
Plague: Broadside warnings 61, **62**
Poaching: Musk deer 720
Pokot people: ***The Threatened Ways of Kenya's Pokot People***. By Elizabeth L. Meyerhoff. Jan., 120-140
Acculturation imminent 120, 122, 140; Outside influences 120, 123, 138, 140
Adornment: Female 122, 126, **126, 127,** 134, 140, scarification 126, **135;** Male 126
Beliefs: Star reading 122; Supernaturalism 120, 130, 131
Farming 120, 123, 124, **125,** 126; Cooperative teams 126; Crops 123, 125; Farmland 123, 125, 126; Irrigation 125; Planting scheme 126; Scarecrowing **124,** 125; Tools **125**
Herders **132-133,** 133-134; Camps, temporary 134, camping diet **132,** 134; Housing compound 134
Labor, division of 122, 123, **125,** 126, 130, 134; Children 123, 125, 130, 134; Women **122, 125,** 126, 128, 130, 131, 134
Marriage customs 133, 134, 138, 140; Bridewealth 133, 134, 135; Polygyny 134; Wedding 133
Population 120, 123
Puberty rites 134; Female 134, 135, 138, **138, 139,** 140; Male **132,** 133, 134, **136-137**
Rites of passage: Birth ritual 120; Marriage 133; *see also* Puberty rites, *above*
Tribal lands 120, 123, **124-125;** Areas, comparable 123; Map 123; Roadbuilding within 120, 123
Pol Pot: ***Kampuchea Wakens From a Nightmare***. By Peter T. White. May, 590-623; ***The Temples of Angkor***. By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Poland 419; *The Face and Faith of Poland*. Apr. special supplement; Potatoes 671, 677; Unrest (1980s) 12, 21
Polar bears: Hudson Bay region 381, 384, **393, 394,** 395, **395,** 397, 404
Polisot, France: Vineyards **487**
Pollination: Bats 90; ***Hummingbirds: The Nectar Connection***. By Paul W. Ewald. Feb., 223-227
Pont-Audemer (town), France 510
Pont St. Michel (bridge), Paris **478-479**
Porcheville, France: Electrical generating plant **491**
Port Sudan, Sudan 364, 378
Porter, Eliot **338,** 344
Portobelo, Panama: Disease 232; Trade, 17th-century 231, 232
Potato Blossom Festival, Aroostook County, Maine 687; Queen **692**
Potato chips 677, 681, 687
Potato famine (1845-1851): Ireland 679, 682, 688
Potato latkes: Toledo, Spain 730
Potato Museum, Lasne-Maransart, Belgium 679
Potato war (1778-1779) 679
Potatoes 547;
The Incredible Potato. By Robert E. Rhoades. May, 668-694
Calories 668, 679, 682
Consumption, by country 682, 686, 687, 689, 694
Dehydrated 668, 677, 687; Andean staple 674, 693
Diagram **676-677**
Diseases and wilt 670, 672, 687, 688, 693, 694; Disease-free potatoes 686, 687, 693, 694, disinfection of shoes 687, fungicides 686, 688; Late blight 679, 682, 686, **689,** 694; Viruses X and Y 694; Wart 694
Distilled 668, 687
Frozen products 677, 681, 682, 687, 693; Freeze-drying process 674, 693
Fuel from 668, 671
Hardiness and adaptability 668, 670, 685; Temperature tolerance 670-671, 676, 693, 694
Hybrids, potato-tomato 693
Museum 679
Nutritiousness 668, 670, 677, 682, 686, 693; B vitamins 679; Iron 679; Protein 670, 679; Vitamin C 670, 679
Poisonous relatives 678
Processing 668, 677, 681, **682,** 687, 693
Production, by country 668, 679, 681, 693
Research 677, 679; Peru 672, 679, 693-694, genetic studies 685, 686; Philippines **686;** Soviet Union 672; United States 681, 687, 693; West Germany 693
Seed potatoes 686, 687, 693
Seedballs **676,** 677, 681; "true seed" 686, 693, 694
Skin **677,** 681, 693; Dietary fiber 677
Species **670-671,** 676, **680-681,** 694, improved 687, 693; Extinction threat 694; Germplasm bank 694; Wild 668, 672, 694
Suspicions and misconceptions 668, 678, 686-687
Versatility 668, 693-694
Water content 668, 674, 693
Yearly crop value 668
Yield per acre 668, 679, 693; Ethyl alcohol 671
Nepal 711, 719, 724
Potlatch, Idaho **798,** 818
Potlatch River, Idaho: Flash flood: 802-803
Potosí, Peru: Silver mines 232
Potsherds, Roman: Bermuda shipwreck (1619) **69,** 70
Potters: Spain 734, **748**
Pottery: Potato-shaped **674,** 676; Wolstenholme Towne site, Va. 53, 58, 67, **71**
Power plants: France **491;** ***Quebec's Northern Dynamo***. By Larry Kohl. Mar., 406-418
Power plants, proposed: Egypt 200, 202
Powhatan attacks on Wolstenholme Towne, Va. **52,** 70, **72-73,** 74, 76
Prasat Kravanh (temple), Angkor, Kampuchea **561,** 562, **562, 581;** Bas-relief **580;** Restoration 567, 570, 581
Prayer flags: China **254-255;** Nepal **725**
Prayer stones: Nepal **722-723**
Preah Khan (temple), Angkor, Kampuchea **560-562,** 562, 579; Changes (1968-1982) **572, 576-577,** 585
Pre-Columbian art: Peru: Theft of 283, 298, 303
Predation: ***The Amazing Frog-Eating Bat***. By Merlin D. Tuttle. Jan., 78-91; Armadillos 820, 823
Prenzlauer Berg (district), East Berlin **32;** Housing 17, 26, **26-27**
Preserving a Mountain Heritage. By Sir Edmund Hillary. June, 696-703
Prost, Louis 490-491
Protest demonstrations: Kampuchea 616; Namibia 765; Peru 291; Sinai Peninsula **446,** 456; West Berlin **10, 38-39,** 42, 46
Protheroe-Beynon, Jane 67
Prussia: Napoleonic wars 149, 163, 181; Potato war 679
Prussian heritage: Berlin, Germany 4, 17, 20
Puberty rites: Himbas 775; Pokot people 134, female 134, 135, 138, **138, 139,** 140, male **132,** 133, 134, **136-137**
Pueblo Indians: Santa Fe region, N. Mex. 336, 343; Sculpture **342, 343**
Pueblo Rebellion: New Mexico 326, 334-335
Puerto Maldonado, Peru **320-321;** Jungle near 306-307
Pug-nosed tree frog **89;** Countermeasures to predation 86, 89
Pullman, Wash. 802, 812; Symphony orchestra 807; University 807, women's crew **812-813**
Puno, Peru 310, **316-317**
Pursat, Kampuchea 592, 606
Putman, John J.: ***Napoleon***. Feb., 142-189
Pyramids: Giza, Egypt **158-159,** cover; Meroe, Sudan **348-349,** 377, 378
Pyramids, Battle of the (1798) 157, 158-159

Q

Qaddafi, Muammar: Aggression in North Africa 356, 357
Qara, Egypt 202
Qasr el Ghueita (temple): Egypt: Local guardian 208
Qattara Depression, Egypt: Canal, proposed 200, 202
Qinghai Province, People's Republic of China: ***Nomads of China's West.*** By Galen Rowell. Feb., 244-263
Quebec (province), Canada: ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418
Quechua (Indians): Peru 292, 310; Language 293, 308, potato names 670-671, 676
Quemoy (island), Taiwan-held 1; Bottle factory **116;** Military bases 99, 116; Size 99
Quilt, bald-eagle design **695**
Quokkas: Muscular dystrophy research 655, 664, 666; Protected species status **655,** 663

R

Rabbitskin, Sam **416**
Rahman, Ali Sharif Abdul 374
Railroad station: Kampuchea 592, **592-593,** 614
Ramsay, Malcolm 384, 387
Rand, Stanley 81
Rankin Inlet (Inuit community), Canada 392, 394; Mother and baby **389**
Ras el Gindi, Egypt: Ruins **424-425**
Ras Muhammad, Egypt: Corals 428, 459; Fishing 459, 461
Rashaidas (Sudanese Arabs): Family **375**
Rashidi, Haj Taha 208
Rattliff, Brian 535
Rauchfangswerder (suburb), East Berlin 31
Ravana (Hindu god): Bas-relief 563, **563**
Red Fern, Ky. 528, 529, 531, 546
Red Sea: Coral reefs 428, 459, **460,** 461; Israelites' crossing 444
Red Sea Divers Center, Naama Bay, Sinai Peninsula 459, 461
Red Square, Moscow, U.S.S.R. **175**
Reed, Wayne 662
Reed boats 310, 312, **318-319**
Reed islands: Lake Titicaca, Bolivia-Peru 310, 312, **318-319**
Reforestation program: Sagarmatha National Park, Nepal 713, 716, 719, seedlings **713,** 719
Refugees: Angolans in Namibia 780; Ethiopians in Sudan 357; Irish potato famine victims in U. S. 686, 687, 688-689; Kampucheans in Thailand 549, 598, 622; Namibians in Angola and Zambia 775
Regensburg, Battle of 490
Rehoboth, Namibia: Coloureds 762
Reichstag (building), West Berlin **34-35,** 48
Reincarnation: Bas-relief: Angkor, Kampuchea **568-569**
Reinickendorf (district), West Berlin **40-41**
Religion, mail-order self-help 802
Religions *see* Ancestor spirits; Buddhism; Fundamentalist religion; Hinduism; Islam; Roman Catholicism; Tibetan Buddhism
Religious ceremonies and processions: Barge service **493;** Peru **288,** 289, 295, 303, **304-305,** 305; Poland Apr. supplement; Taiwan **94-95, 108;** Toledo, Spain 729, 730, 732, **746**
Retired-women's club: France 490
Revillagigedo Islands, Pacific Ocean: Humpback whales, study of 464, 465
Revolutionary Youth: Kampuchea 614; Orphans **608,** 616
Reynolds, Kentyn 333
Rhinocolorum (Roman outpost), Sinai Peninsula 442
Rhoades, Robert E. 547; ***The Incredible Potato.*** May, 668-694
Rhododendrons **706,** 720
Rhône (river), France 485, 491
Ribadeneira, Pedro de 751
Rice, Margo 465
Rice cultivation: Kampuchea 567, 571, 590, **590-591,** 592, 594; Maps showing 567, 598; Problems 605-606, **606-607**
Richards, Bill: ***Henry Hudson's Changing Bay.*** Mar., 380-405
Richardson, Bessie 531
Richardson, H. R. 531, 534
Richardson, Tadarro 534-535
Richter, Federico 306
Ridgeway, Rick: ***Park at the Top of the World: Mount Everest National Park.*** June, 704-725
Rift Valley, Africa **124-125;** Grazing lands 125, 126, 134
Rimac, River, Peru 298
Rings, emerald 233, **237,** 239
Rio Tinto Ltd., Great Britain: Western Australia iron mine 653
Risch, Albert and Hildegard **33**
Rivers: ***The Civilizing Seine.*** By Charles McCarry. Apr., 478-511; ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418
Roberts, Murray, photographer: ***The Threatened Ways of Kenya's Pokot People.*** Jan., 120-140
Robinson, Frank "Psychiana" 802
Robinson, G. W. 653
Robot sheepshearer **646-647,** 651
Rock, Joseph F. 244, 247, 248, 251, 252
Rockefeller University: Study grant: Humpback whale 466
Rocket launcher, RPG-7 **771**
Roe, John Septimus 654
Rogers, Martin 547; photographer: ***The Incredible Potato.*** May, 668-694
Rojas, Gaspar de 232, 236, 240
Roman, Diego 231, 236
Roman art: Bronzes: Statue of Sequana **480**
Roman Catholicism: *The Face and Faith of Poland.* Apr. special supplement; Peru 292, 306, processions **288,** 289, 295, 303, **304-305,** 305; ***Toledo—El Greco's Spain Lives On.*** By Louise E. Levathes. June, 726-753
Romero, Orlando 326
Rommel, Erwin: Command post **498-499**
Rosehearty (boat) 503-504, 507, 510
Rosenstein, Howard, and family 459, **460,** 461
Rosetta stone **149;** Discovery 149
Ross, Cal 387
Rössing uranium mine, Namibia 782, 788; Taxes 791
Rotor, generator **408**
Rotterdam, Netherlands: Museum 59, 76, 77
Rottnest Island, Australia 661; Automobiles banned 663; Quokkas **655,** 663
Rouen, France 504, **505,** 507; Bombing during World War II 504, 507; Cathedral **504,** 507; Joan of Arc 481, 506, festival of **506-507,** 507
Rowell, Galen: ***Nomads of China's West.*** Feb., 244-263
Royal Military School, Brienne, France 152
Rufous hummingbirds 226, **227**
Ruiz de Toledo, Gonzalo: Burial 730, **742**
Rundu, Namibia 780
Russet Burbank (potato) **680, 683,** 693
Russia: Napoleonic wars 149, 162, 163, 167, 171-174, 179, retreat from Moscow **176-177**
Ryan, Michael J. 80, 81

S

Sackville family vault: Withyham, England 61-62, **63**
Sadat, Anwar 440, 444, 452; Agricultural policy 199, 200-201; Assassination 356, 357, 430, 452, 454-455; Camp David accords 428, 444; Jerusalem visit 444, 452; Science advisor *see* El-Baz, Farouk
Sadot (moshav), Sinai Peninsula: Strawberry planters **452-453;** Tomato processing **453**
Sagarmatha National Park, Nepal: ***Park at the Top of the World: Mount Everest National Park.*** By Rick Ridgeway. June, 704-725; ***Preserving a Mountain Heritage.*** By Sir Edmund Hillary. June, 696-703
Sahara (desert), Africa: ***Egypt's Desert of Promise.*** By Farouk El-

Baz. Feb., 190-221
Saigon, Vietnam 141
St. Catherine's Monastery, Sinai Peninsula, Egypt **436-437,** 449
Saint-Cyr, Special Military School of, Brittany, France: Cadets **166-167**
Saint-Denis, France: Girls' school **160**
St. Eustatius, Leeward Islands: Dutch plate fragments **58**
St. Georges Terrace (street), Perth, Australia 638, **640-641**
Saint-Germain-en-Laye, France 504
St. Helena (island), Atlantic Ocean 181, 185, **186-187,** 188-189; Governor 185; Napoleon's exile 186, 187
St. Helena, R.M.S. 181, 185
St. Helens, Mount, Wash.: Volcanic ash 806-807, helped retain soil moisture 801, 802, 807
"St. Martin and the Beggar" (El Greco) **743**
St. Michael and All Angels, Church of, Withyham, England **59;** Sackville vault 61-62, **63**
"St. Peter in Tears" (El Greco) **741**
St. Wandrille, Abbey of, France 510
Sala Padevat (school), Phnom Penh, Kampuchea 614
Saladin, Sultan: Fortress built by, Sinai Peninsula **424-425**
Salem, Salam Saad 430, 434, 437
Saloma, Kentucky 531
Salt: Kampuchea 552, 574, 577; Uses of 211
Salt buildup in irrigated land 202, **202**
Salt pans: Namibia 768, 778, 786, 787
Salvage: ***Treasure From the Ghost Galleon:*** **Santa Margarita.** By Eugene Lyon. Feb., 228-243
San Ildefonso, Pueblo of, N. Mex. 336
San Isidro (section), Lima, Peru: Shopping mall **296-297**
San Martín de Esteban-Infantes, Victoria **750**
San Martino (villa), Elba (island), Italy **180**
San Servando (castle), Toledo, Spain 729
San Torcuato (church), Toledo, Spain: Tomb of El Greco 745
Sanafir Island, Saudi Arabia: Egyptian control returned (1982) 429
Sand dunes: Egypt 208, dissection 208-210, dynamics 199, 202, 206, encroachment **203,** 208, formation 199, 206, variety **190-191,** 206, **214-215;** Loess 806-807; Namibia **756-757,** 787, 793, **796-797;** Peru **314-315;** Sinai **420-421,** 428
Sanders, Richard Allen 537
Sandoval y Rojas, Cardinal: Country retreat 751
Sandwich Harbour, Namibia 793; Flamingos **756-757,** 793
Sanskrit: Khmer Empire 559, 566, 581
Santa Fe, N. Mex.: ***Goal at the End of the Trail: Santa Fe.*** By William S. Ellis. Mar., 323-345
  The arts: Art galleries 324, 331-332, 344; Artists **325,** 326, **331,** 342-343; *see also* Performing arts, *below*
  Elevation 328
  Fiesta 323, 326, **328**
  History 323, 326, 333-335
  Indians 323, 324, 326, **328, 331,** 335-336; Arts **330-331,** 336, **340-341, 342, 343;** Indian Market **329**
  Mayor 336, 344
  Name 333
  Performing arts 333, 336; Opera company 333, theater **332**
  Population 326; Growth 324, 328
  Solar energy development 340, 344; Solar houses **324-325,** 340
  Spanish heritage 324, 326, 328, 333, 336
  Water supply 330, 344
Santa Fe Opera: Theater **332,** 333
Santa Margarita (galleon): ***Treasure From the Ghost Galleon:*** **Santa Margarita.** By Eugene Lyon. Feb., 228-243
  Armament 232, 242
  Contraband carried 235, 236
  Gold objects **228-229, 234, 235, 237,** 239, 240, 242-243
  Identification 239-240
  Infantry 232, 233, 243
  Manifest 232, 233, 235, 236, 239
  Passengers 233, 236
  Salvage: 17th century 235, 236, 238, 243; 20th century **233,** 235, **235, 237,** 238-240, 242-243; Value of artifacts 235, 243
  Section preserved 232, 239, **240-241,** 242; Photomosaic 242, **243**
  Sinking **230-231,** 231, 236, 243
Santiago del Arrabal (church), Toledo, Spain 748
Santo Domingo el Antiguo, Convent of, Toledo, Spain: Altarpieces by El Greco 734, 745; Tomb of El Greco 745
Santo Tomé Church, Toledo, Spain: Painting by El Greco 730, **742**
Sarusas, Namibia: Diamond prospecting 784
Satellite photography and tracking: Desert exploration 199, 208, 210-211
Sausages 541, **811;** Curing room **652**
Sawyer, Richard **686,** 693-694
Scarecrowing: Pokot people **124,** children 125, 130
Scarification: Ovambos 769; Pokot women and girls 126, **135;** Sudanese tribes **350,** 354, 363, **366,** 367, cover
Schlecht, Richard, artist: ***New Clues to an Old Mystery*** (Virginia's Wolstenholme Towne). Jan., 53-77
Schofield, Phil, photographer: ***A Paradise Called the Palouse.*** June, 798-819
Schönbrunn Palace, Vienna, Austria 165; Bedroom **171**
Schöneberg (district), West Berlin: Dairy 48
School-building program: Nepal 698, **698,** 702, 720
School for the Deaf, Santa Fe, N. Mex. **337**
School of American Research, Santa Fe, N. Mex.: Indian arts collection **340-341**
School of Fine Arts, Phnom Penh, Kampuchea: Dancers **595**
Schoolroom: Khartoum, Sudan **362**
Schools: Aboriginal 662, **664-665**
Schools of the Air: Western Australia 666
Schwartz, Douglas **341**
Sculpture: Aboriginal **663;** Bronze **480,** 485, 490; Santa Fe, N. Mex. **330-331, 342, 343;** *see also* Wood carvings; *and* Angkor
Sea anemone **276**
Sea squirts: Palau Islands lakes 278, 281
Seabirds: Digges Islands, Canada 396, 397, 399
Seafloor remnants: Western Desert, Egypt **194-195, 215, 216-217**
Seal River, Canada: Belugas **401**
Seed potatoes 686, 687, 693
Seine, River, France: ***The Civilizing Seine.*** By Charles McCarry. Apr., 478-511
  Canal-river network 484-485, **486-487,** 494, 496, 504; Map 484
  Dams, locks and embankments 484, 503, 506
  Drainage basin 482, 484
  Dredging 503, 504, 506
  Elevation 484, 485, 503
  Estuary 481, **508-509**
  Legends 481, 482, 485, 501, 511
  Maps 484-485
  Source 482, **483,** 484-485
  Tides and currents 484, 503
  Tributaries 482, 484, 485, 492
  see also Barge society, *outlined*
Senoner, Dietrich 48-49
Sequana (goddess of the Seine) 484-485; Statues of **480, 483**
Seventh-day Adventists: Peru 312
Sharm el Sheikh, Sinai Peninsula, Egypt: Coral reefs 459, **460;** Israeli settlements 434, 459; Peacekeeping force, multinational 429
Sheehan, Maurice 679
Sheep: Floating stockyards **644-645,** 647, 651; Namibia **776;** Peru **286-287,** 317, accidently killed **316-317;** Western Australia 643, 644, **644-645,** 646, **646-647,** 647, 651

Sheepshearing **800**; Computerized **646-647**, 651
Shell (racing boat) **813**
Shen Tsu-wei **102**
Shepard, C. C. 828
Sherpas: ***Park at the Top of the World: Mount Everest National Park.*** By Rick Ridgeway. June, 704-725; ***Preserving a Mountain Heritage.*** By Sir Edmund Hillary. June, 696-703
Anti-park bias 702, 704, 715, 716
Changes in family and community life 707, 712-713, 724
Dancing 724
Education 716, 720; School-building program 698, **698**, 702, 720
Farming 707, 711
Festival **708, 709**
Firewood selling 702, 713, 715
Food and drink 711, 716, 719, 724
Forest resources: Conservation practices, former 724; Firewood and timber 698, 702, 710, **712-713**, 713, 715, 716
Hospitality 715, 716, 720
Population 699
Porters, employment as 701, 702, 707, 711, 712, **723**; Fatalities 722
Religion 704, 708, 716 722
Trading center *see* Namche Bazar
Shipanga, Andreas 765
Shipbuilding: Taiwan 111
Shipping: Australia 643, **644-645**, 646-647; Hudson Bay, Canada 384; Red Sea-Gulf of Aqaba 459, **459**; Suez Canal, Egypt 438, 440, **440-441**
Ships: Floating stockyards **644-645**, 647, 651
Shipton, Eric 698
Shipwrecks 53, 57, 58, 59, 67, **68-69**, 70, 71; Freighter **459**; Marble Island, Canada 404; Namibia 784, 786, figureheads **785**, 786; ***Treasure From the Ghost Galleon: Santa Margarita.*** By Eugene Lyon. Feb., 228-243
Shitemo, Namibia: Farm 780
Shrimp: Palau Islands lakes 272, **273**
Siem Reap, Kampuchea 571, 581, 589, **596-597**, 599, 604, 613
Siem Reap River, Kampuchea 560, 574
Siemens AG electric generator plant, West Berlin **42**; Pensioners, health club for **42-43**
Sievers, Christine 784
Silber, Gregory 465, 469
Silk-cotton tree **573**
Silver artifacts: *Santa Margarita* salvage 231, 232, 233, 235, 236, 239, 240, 242, 243
Silver cups: Tibetan mantle studded with **259**
Silver incense burner: Peru **288**
Silver mines: New World 232
Simplot, J. R. "Jack" 687, 693; Company **682, 683**
Sin (Mesopotamian god) 437
Sinai, Mount *see* Musa, Gebel
Sinai Peninsula, Egypt 1; ***Eternal Sinai.*** By Harvey Arden. Apr., 420-461
Agriculture 423, 432, 434, 456 *see also* Moshavs, *below*
Arab-Israeli wars 428, 430, 459; Yom Kippur war (1973) 440, 444
Bedouin 422-423, **422-423**, **426-427**, 428, 430, **431-433**, 434, **436-437**, **439**, 448, **453**, 456; Clinics 423, 430, 434, 437, **448**; Population 423, 438; Settlement of 423, 430, 434, 438
Camp David accords 428, 430, 444
History 424-425, 428, 437-438, 442
Islam 424-427, **426-427**, 437; Introduction of 428, 438
Israeli occupation 421, 423, 428, 430, 438; Development during **420-421**, 421, 438, 444, **450-453**, 456; Settlements **420-421**, 430, 434, 438, **446-447**, **450-451**, 456, 457, 459, map locating 429; Withdrawal 421, 428, 430, 447, 453, 455, 456, 457, 459; Zealots 430, **446**, 447, 456, 457, 459
Maps 428-429
Moshavs **445, 450, 452-453**, 456
Name origin, possible 437
Oil 428, 430, 434, 448-449, 461; Israeli discoveries 438, 448
Population 428
Religions 426-427, 437, 442, 444, 447, 449
Ruins **424-425**
Strategic importance 428, 437, 442
Sinai Restaurant, Toledo, Spain 730, 749; Owner **730**, 749
Sinai Support Mission 429
Sinkholes: Kentucky 537
Siska (sloop) 659
Sisneros, William 328, 330
Sisophon, Kampuchea: Markets 594, **618-619**
Siwa Oasis, Egypt 202
Six day war (1967): Sinai Peninsula 428, 430, 459
Skaggs family 544-546
Skeleton Coast (region), Namibia 784, **785**; Shipwrecks 784, 786, figureheads **785**, 786; Wildlife **756-757**, 784, 787, 793
Skeleton Coast Park, Namibia 784
Skeletons and skulls: Egypt **219**; Kampuchea 599, **602-603**; Martin's Hundred plantation, Va. **52**, 53, 56, 61, **74**, **75**, 76, 77
Skins: Arctic fox 402, jacket **390**; Caribou skins **388**, 392, Inuit clothing 389, 391, **402-403**; Deer 537; Wolfskin **384**
Sleds: Inuit **383**, 392, **402**
Sleeping sickness: Sudan 363, 378, examination **363**
Smith, Jack 342; Sculpture by **342**
Smith, James 528-529, 531, 546
Smith, Jamie 809
Smith, Randy 809, 812
Smithsonian Institution, Washington, D. C.: Research station: ***The Amazing Frog-Eating Bat.*** By Merlin D. Tuttle. Jan., 78-91
Smuggling: Kampuchea-Thailand 552, 577, 585, 592, 594, 605, 618; Peru 312, **312**; Taiwan 105
Snakes: Kampuchea **574**, 579, bas-relief 563-564, **563-565**
Snake River, Wyo.-Idaho-Wash. 807; Salmon fishing 818; Women's crew **812-813**
Snashfold, Robert 62, **63**
Snow Mountain Commune, People's Republic of China 244, 246, **252-253**; Golog family **244-245**
Snowmobiles: Inuit 382, **383**, 389, 392, **399**, **402**
Snuffbox, diamond-encrusted **169**
Sobieski, Jan Apr. supplement
Social Democratic Party: West Berlin 36
Soft Coral Lake, Palau Islands: Corals **270-271**
Softball game: Kentucky **530**
Sohn, Florence 342: Evening bag design **342**
Soil: Loess 806, 807; Volcanic ash, benefit of 801, 802, 807
Soil aeration: Armadillos 823
Soil conservation: Kentucky 529, 546
Soil erosion 529, 802
Solahart firm, Perth, Australia 662
Solar energy development: Nepal 715; Perth, Australia 662; Santa Fe., N. Mex. 340, 344
Solar houses: Santa Fe, N. Mex. **324-325**, 340, 344
Solidarity (Polish trade union organization) 419; *The Face and Faith of Poland.* Apr. special supplement
Solín, Cristóbal 316, 320
Solitaire, Namibia: Sheep ranch **776**
Somers, Sir George 71
Son Sann 549, 622
Soop, Hans **69**
Sorcery: France 510; Sorcery trial: Pokot people 130-131
Sorghum **346-347**, 367, 368, 374
Sossus Vlei, Namibia: Dunes 793
Soto, Mike 803
South Africa: Namibia controlled by 755, 765; Raids into Angola 755, 762, 764; UNITA support 764, 780
South African Defense Force: Namibia 755, **762-763**, 771, **771**
South America: Armadillos 820, 822; ***The Incredible Potato.*** By Robert E. Rhoades. May, 668-694; ***Indians of South America; Archaeology of South America.*** Mar. supplement; *see also* Peru
South Fremantle Bulldogs (football team) 655
South-West Africa *see* Namibia
South-West Africa People's Orga-

nization *see* SWAPO
Southeast Asia *see* Kampuchea
Spaceflight simulator for children: East Berlin 24, **28**
Spain: Napoleonic Wars 149, 170-171, 173; ***Toledo—El Greco's Spain Lives On.*** By Louise E. Levathes. June, 726-753
Spandau (district), West Berlin **12-13,** 38
Spanish colonies, New World: Map 230-231; Peru 287, 293, 294-295, 310; Trade 231, 232
Spanish dancer: Santa Fe, N. Mex. **328**
Spanish galleons: ***Treasure From the Ghost Galleon:* Santa Margarita.** By Eugene Lyon. Feb., 228-243
Spanish Inquisition 730, 748
Special Military School of Saint-Cyr, France: Cadets **166-167**
Sperrgebiet region, Namibia **758-759**
Sphinx: Giza, Egypt 213, **213**
Spillways: La Grande Complex, Quebec (province), Canada **406-407,** 409, **409, 412**
Spirits: Bushmen beliefs 755; Pokot beliefs 120, 130
Sponges: Palau Islands lakes 278, 281
Spooky Lake, Eil Malk (island), Palau Islands 272-273, **273, 274, 275,** 276, **280-281**
Sports: Crewing **812-813;** East Germany: Athletes **22, 23,** 32-33, facilities 23, **23,** 24, **28-29,** 30; Perth, Australia 638, **638-639, 650-651,** 651, 655, 659; Rugby **813**
Spree, River, East Germany 9, **37;** Valley 17, 20
Springs of Moses, Sinai Peninsula, Egypt 447
Sprowles, Willie and Katie 545
Squatters: Kampuchea 608, 614; Sinai Peninsula, Egypt **446,** 457; West Berlin **39,** 42
Sras Srang (royal bath), Angkor, Kampuchea 570-571
Stagecoach: West Berlin **51**
Stanislawski, Barbara 341
Starbird, Ethel A. 547
Starvation: Ireland (1845-1851) 679, 682, 688; Kampuchea 549, 590, 604, 605, 606; Potato therapy 679, 682, 684-685
Stearman, Cynthia **544**
Steel industry: Poland Apr. supplement; Taiwan 111
Steeple making: Kentucky: Transportation **538,** 539
Steptoe, Edward 814
Steptoe, Wash.: Farm near 809, 812
Steptoe Butte, Wash. 801, 814; Wheat fields **804**
Still head (alembic): Martin's Hundred plantation, Va. 53, **57**
Stilt huts: Kampuchea **612-613**
Stirling, James 642
Stoneware bottles 53, **57**
Storrs, Eleanor E.: ***The Astonishing Armadillo.*** June, 820-830
Strange World of Palau's Salt Lakes. By William M. Hamner. Feb., 264-282
Strawberries: Sinai Peninsula, Egypt **452-453**
Street vendors: Lima, Peru **294-295;** Taiwan 103, **104,** 104-105
Strikes: Poland Apr. supplement
Strode, William, photographer: ***Home to the Heart of Kentucky.*** Apr., 522-546
Studënka (village), U.S.S.R. 177, 179
Stung Treng Province, Kampuchea: Torture survivor 622
Su Nan-cheng **101,** 110, 111, 119
Suakin, Sudan **364-365**
Subiaco Oval, Perth, Australia: Football game 655, 659
Sudan:
  Camel caravans 198-199; Route 211
  Sudan: Arab-African Giant. By Robert Caputo. Mar., 346-379
  Capital *see* Khartoum
  Civil wars 349, 354, 356, 357, 377
  Education **362,** 363, 374-375
  Ethnic diversity 347, 354, 355, 357; Map 357
  External threats 349, 356, 357, 361
  Facts and figures 357
  Flag **357**
  Foreign aid to 357, 359, 362, 363, 376, 377
  Health problems 355, 363
  History 347, 348, 356, 357, 364-365, 367, 368, 374
  Jonglei Canal project 352-353, **352-353,** 376-377
  Map 357
  Oil exploration 350, 357, 362, 367, 370
  Religion 357, 367, 370, 374
  Size 347, 354, 357
  Water, underground 220
The Sudd (swamp), Sudan **350-351,** 352-353, 354, 355, 357, 376
Suez, Egypt 438
Suez, Gulf of 428; Gas flares **434,** 449; Oil 428, 430, 434, 448-449
Suez Canal, Egypt 428, 438, 440, 440-441, 444; Tunnel 438, **441**
Sugar production: Kampuchea 592, 599; Sudan 356, **358-359,** 376
Suluk, Donald 391, **398**
Sun Moon Lake, Taiwan **110-111;** Aborigines 112, **112**
Sun Yat-sen 98
Sunbathing, nude: Perth, Australia 662-663; West Berlin 37, **45**
Sundial, pocket 238, **239,** 243
"Sunrise Song" (sculpture by Houser) **330-331**
Surfing: Cottesloe Beach, Australia 660; Windsurfing **110-111**
Survival skills: Inuit 391-392, 402
Suryavarman II, King (Khmer Empire) 563, 566; Army, bas-relief of 581, 584
Swakopmund, Namibia 788, 791; Mayor **782;** Vice-mayor 788, 791
Swan River, Australia **640-641,** 661; Estuary 642
Swanbourne Beach, Perth, Australia 662-663
SWAPO (South-West Africa People's Organization) 755, 761, 765, 775, 782; Angolan cooperation 761, 762, 780; Colors **769;** Elections 762, 791, 793; Guerrillas 755, 761, 762, 768, 780; Ovambo tribesmen 755, 761; Raids 761, 768, 769, 775, 780; Repression of members 765, 782; Supporters **769;** United Nations recognition 755, 765
SWAPO-D: Namibia 765
Sweet potato 677, 678
Swimming: Australia 651; East Germany **23,** 28, 30
Swimming pools: Perth, Australia **650**
Sword making: Toledo, Spain 734, 735
Swords 490, 734
Syam Bajimaya 715
Symbiosis: *Mastigias* and zooxanthellae 282; *see also* Commensalism
Synagogues, former: Toledo, Spain 748, 749, **750-751**
Synthesizers, music 333
Syria: Napoleon's campaign 157

T

Ta Keo (temple), Angkor, Kampuchea **561-562,** 562, 579
Ta Prohm (temple), Angkor, Kampuchea **572-573,** 579
Ta Som (temple), Angkor, Kampuchea: Gate **578, 579**
Taapopi, Frans 775
Taapopi, Josia Shikongo 769, 775
Taft, Cindy 86
Tagus River, and valley, Portugal-Spain 729, 750, 753; Pollution 729, 734; Pottery making 734, 749
Tahrs, Himalayan **717,** 719
Taichung, Taiwan 101, 111
Taiga: Quebec, Canada 414, 418
Tainan, Taiwan 101, 110; Mayor **101,** 110, 111, 119
Taipei, Taiwan: ***Taiwan Confronts a New Era.*** By Noel Grove. Jan., 93-119
Taiwan Confronts a New Era. By Noel Grove. Jan., 93-119
  Aborigines 98, 112, **112-113**
  Capital *see* Taipei
  Censorship 107, 114, 119
  China, People's Republic of 105, 119
  Climate 118
  Diplomatic isolation 92, 94, 98, 99, 116
  Earthquakes 103, 104
  Economy 97, 98, 99, 101; Exports 98, 103, 105; Incomes

104, annual per capita 98; Personal savings 104; Planning 105, 107
Ethnic groups 95, 98, 112, 113 *see also* Aborigines, *above;* Mainlanders, *below*
Family life 103, 109
Government 98, 109, 115, 119
Imports 99, 101
Industry 103, 105, 107, 111; Accidents 107, 109; Electronics plant **102-103;** Policy 101
Kuomintang (KMT) 98, 101, 113, 114, 115; Meeting **100**
Mainlanders 95, 98, 109, 111, 113, 115, 119
Map 98
Martial law 98, 113, 114-115
Military 99, 115, 116, **116-117**
Population 97, 98
Presidents *see* Chiang Ching-kuo; Chiang Kai-shek
Religion: Ancestor worship **108-109,** 109; Religious celebration **94-95**
Size 99
Standard of living 97, 98, 99, 103
Students **92-93,** 94, 99
Trade 103, 105
United States and 99; Derecognition 99, 116; Trade 103, 105
Taiwan Relations Act 99
Takeo, Kampuchea: Forced evacuation (1975) 599
Talavera de la Reina, Spain: Pottery making 734
Talma, François Joseph 163
Talmei Yosef (moshav), Sinai Peninsula: Tomatoes **453**
Tanks: Battle, one of the largest 454; Israel: Training **454-455**
Tapestry weaver **800**
Tarkik, Charlie **381,** 394, 396, 397
Tarkik, Kautjak **381**
Taroko Gorge, Taiwan 94, 99, 111
Tartak, Theresa **388**
Tasker, Rolly 659
Tattoos: Egyptian **204;** Khmer 571
Tatty, Robert, and son 404
Taylor County, Ky.: ***Home to the Heart of Kentucky.*** By Nadine Brewer. Apr., 522-546
Television films: NGS (1982 specials): "Egypt: Quest for Eternity" (February); "Polar Bear Alert" (March), filming of 387, 395; "The Sharks" (January); "The Thames" (April)
The Tempest (Shakespeare) 67, 71
Temples: ***The Temples of Angkor.*** By Peter T. White. Introduction by Wilbur E. Garrett, Editor. May, 548-589
Tennis club: Nedlands, Australia **650-651**
Tenschert, Joachim 31
Tenzing Norgay 698, 712
Teresa, Duchess of Andria: Country retreat 752
Terns: Forster's terns **628,** 630
Terrace farming: Palouse Hills, Idaho-Wash. **804,** 814, 816-817, 819; Philippines **684-685;** Sherpa villages **710-711**
Terrorism: Namibia 755, 768, 769, 780; Sudan 356, 361; *see also* Assassination
Texas: Armadillo population 825, 827, 828, 830
Textile seal: Augsburg, Germany **59**
Thailand: Black market 552, 577, 585, 592, 594, 605, 618; History 550, 555, 565, 574, 577, 589, 598; Kampuchean refugees 549, 598, 622, map locating camps 598
Thames (river), England: Artifacts **59,** 70; NGS television film (1982 special): "The Thames" (April)
Thami Monastery, Nepal: Festival **708**
Thatched dwellings: Namibia **760-761;** Nuer tribe **350-351,** 363, 378; Peruvian Indians **675;** Pokot people 122, **127**
Theotokopoulos, Domenikos *see* El Greco
Theotokopoulos, Jorge Manuel **742,** 745, 746, 748
Thieriot, Angelica 464
Thiounn Prasith 550
Threatened species *see* Endangered and threatened species
The Threatened Ways of Kenya's Pokot People. By Elizabeth L. Meyerhoff. Jan., 120-140
Three-banded armadillo 822
Thyangboche Monastery, Nepal 698, 708, 719, 720
Thyme: Toledo, Spain 729, 746
Tibet: History 244
Tibetan Buddhism 244, 247, 254, 255, 257, 704, 711, 720; Chant 722; Chorten **723;** Festival **708, 709;** Monks **256, 708;** Prayer objects **254-255, 257, 722-723, 725;** Rock shrine **254-255**
Tierpark, East Berlin 30-31
Tierra Firme fleet (1622) 231, 232-233, 236; Route map 230
Timbers: Preserved by permafrost **396;** *Santa Margarita* salvage 232, 239, **240-241,** 242
Timsah, Lake, Sinai Peninsula, Egypt: Exodus theory 447
Tiran, Strait of **458;** Freighter wrecked **459;** Strategic importance 459
Tiran Island, Saudi Arabia: Egyptian control returned (1982) 429
Titian 739, 745
Titicaca, Lake, Bolivia-Peru 319; "floating" islands 310, 312, **318-319**
Toads 80, 83, **84, 88**
Tobacco 677; Kampuchea 606; Kentucky **524,** 525, 532-533, **532-533,** 539, 546, warehouses 533, 539; Natron tenderizer 211
Tobacco pipes, clay: 17th-century shipwreck 67, **70**
Toledo, Archbishop of 733, 746
Toledo, Spain: ***The Genius of El Greco.*** By J. Carter Brown. June, 736-744; ***Toledo—El Greco's Spain Lives On.*** By Louise E. Levathes. June, 726-753
Artisans 734, 735, **748**
Cathedral **746-747;** El Greco painting **740**
Country retreats 750-753
Feast of Corpus Christi 729, 730, 732, **746**
Fencing club **735**
History 728, 745, 748; Christian reconquest 729, 745; Jews 745, 748, 749, 750; Moorish rule 735, 745, 752
Intelligentsia, 16th-century 744, 750-751, 753
Jewish quarter 748; Synagogue, former **750-751**
Legends 730, 742, 748, 750, 752-753
Map 728
Mayor 733
Moorish influences 733, 735, 745, 749
Population 733
Tomato processing plant: Sadot (moshav), Sinai Peninsula **453**
Tomb of the Unknown Soldier, Cairo, Egypt 452, 454
Tombs: Early Christian, in Egypt **219;** Paintings **208-209**
Tombstones, Jewish: Toledo, Spain 748-749
Tonle Sap lake, Kampuchea 552, 567, **612-613,** 620; Aquatic life 598, 612-613; Stilt huts **612-613**
Tonle Sap river, Kampuchea 606, **606-607**
Toulgouat, Jean-Marie **502**
Toutain, Bernard 507
Track of the Forty (caravan route), Egypt-Sudan 211, **211;** Map 201
Train, model: East Germany **30**
Transmission lines: La Grande Complex, Quebec, Canada 418, **418;** Map 410-411
Trapping: Canadian natives' rights 400, 414; Cree Indians 414, 416; Kentucky "long hunters" 537, 545; Trap setting: Inuit method 402, **402, 403**
Treasure, sunken: ***Treasure From the Ghost Galleon:*** **Santa Margarita.** By Eugene Lyon. Feb., 228-243
Tree tobacco flower 226, **226**
Trekkers: Himalayas 699, 704, 710, 720, **723,** firewood consumption, effect of 698, 702, 710, 713, 716
Trouvé, Georges 570
Troy, Katherine **656**
Troy, Idaho: Bank 802
Troyes, France: History 485, 490
Trujillo, Arturo 336, 344
Trust Territory of the Pacific, U. S. *see* Belau, Republic of
Trypanosomes (parasites): Sudan 378, examination for **363**
Tsoying Naval Base, Taiwan: Gymnasts **116-117**
Tsvieli, Amnon 434, 437, **448**
Tswanas (people): Namibia 762
Tucker, Teddy 67, **68,** 70, **70**
Tulard, Jean 165

Tundra: Hudson Bay region, Canada 381, 384, 385, 399
The Tundra Bus (tour bus): Hudson Bay region, Canada **394-395**
Tuol Sleng prison, Kampuchea 600, **600-601,** 601
Tuol Tumpoung market, Phnom Penh, Kampuchea 614, 616-617
Turkey: Proposed by Benjamin Franklin as national symbol 695
Turkish guest workers: West Berlin **6-7,** 38, 40-42, 43, **43**
Turner River Valley, Australia: Iron ore discovered 651, 653
Tuttle, Merlin D. **81, 82, 83;** ***The Amazing Frog-Eating Bat.*** Jan., 78-91
Twain, Mark: Parents 529
Two Berlins—A Generation Apart. By Priit J. Vesilind. Jan., 2-51
The Two Souls of Peru. By Harvey Arden. Mar., 284-321
Tyack, Peter 464, 465, 472
Tyrrell, Robert A., photographer: ***Hummingbirds: The Nectar Connection.*** Feb., 223-227

U

Uganda: Pokot tribal lands 120, map 123
Underground water: Australia 651; Sinai Peninsula 438; Western Desert, Egypt 191, 192-193, 198, 199, 200, 201, 220
Underwear factory: Kentucky **536,** 537
UNESCO: Exhibit sponsored by 551
UNICEF: Aid to Kampuchea 604, 605
Union of Soviet Socialist Republics: Africa, influence in 762; Berlin, Germany 8, 9, 11, 17, 36, 37, 50; Czechoslovakia, invasion of (1968) 21; Kampuchean relations 585, 604, 605, 612-613; Potatoes 671, 672, 677; Vietnamese alliance 610, 611, 612-613; *see also* Russia
Union Underwear factory, Campbellsville, Ky. **536,** 537
Uniontown, Wash.: Annual sausage and sauerkraut feed 811
United Nations: China, Republic of, derecognized 98, 99; East Germany's entry into (1973) 11; Kampuchea 604, 605, reports 605-606, 622, representatives 550, 622; Namibia legal action 766, 768; Namibian elections 762, 791, 793; Secretary-General 306; SWAPO recognition 755, 765; West Germany's entry 11
United Nations building, New York, N.Y.: Angkor exhibit 551
United States: Berlin, Germany 8, 9, 11, 17, 36, 38, 50, soldiers **2-3, 37,** 50, cover; Camp David accords 428, 457; French settlers 537, 545; Irish immigrants 686, 687, 688-689; Kampuchean affairs 612, 616, aid 567, 574, 594, 598, 604, bombing 549, 594, 598, 599, 608; Peru 290, trade 283, 293, 312, 313; Purchase of electricity from Canada 407, 410, 418; Taiwan 99, 103, 105, 116; Trust Territory of the Pacific *see* Belau, Republic of; Vietnam War 549, 581, 594, 599, 608, 612; Wheat yield, average 801; *see also* Kentucky; Palouse Hills, Idaho-Wash.; Santa Fe, N. Mex.; Virginia; *and* Potatoes
U. S. AID program: Dinka (tribespeople), Sudan 362
U. S. Air Force: Bombing of Kampuchea 594, 598, 599, 608
U. S. Army: Berlin, Germany **2-3, 37,** 50, soldiers **2-3,** cover; Palouse Hills Indian raid (1858) 814
U. S. Navy: Liberty ports: Perth, Australia 654
U. S. Public Health Service: Leprosy research 828; Pueblo Indians 336
University of Idaho 807, 811; Ballet company 807, 814, **815;** Women's rugby team **813**
University of Minnesota: Bell Museum of Natural History: Study grant: Western grebes 630
University of Western Australia: Anthropology Museum **663;** Robot sheepshearer **646-647**
Unter den Linden (street), Berlin, Germany 4, 20
Upreti, B. N. 702
Uranium: Canada 402; Namibia 762, 765, mine 782, 788
Uru (people): Peru: Disappearance of 310, 312
Urubamba River, Peru 299, **300-301,** 307
Uweinat, Gebel (mountain), Libyan Desert, Africa 199, 210, 211, 216; Caves 216-217

V

Vancouver, Canada: Aquarium: Boat **462-463;** Study grant: Humpback whale 466
Vandeville, Gérard 180
Vasa (Swedish shipwreck): Artifacts from 53, **68;** Restoration **68-69**
Vasuki (Hindu god): Bas relief 563-564, **563-565**
Vega, Lope de 728, 751, 753
Velo-cabs: Kampuchea **608-609,** 614
Vercingetorix (Gallic chief): Defeat by Julius Caesar 481, 485
Verner, Waldemar 24
Vesilind, Priit J.: ***Two Berlins—A Generation Apart.*** Jan., 2-51
Vienna, Austria 163, 165; Schönbrunn Palace 165, **171**
Viet Cong sanctuaries: Kampuchea 549
Vietnam 141; Occupation of Kampuchea 549, 571, 581, 590, 592, 594, 597, 598, **605,** 611, 612, 617
"View of Toledo" (El Greco) 729, **736-737,** 738
Vikings: Normandy 481, 484, 503
Villena, Marqués de: Palace 748
Vineyards: Polisot, France 485, **487**
Virginia: ***New Clues to an Old Mystery*** (Wolstenholme Towne). By Ivor Noël Hume. Jan., 53-77
Vishnu (Hindu god) 555, 556; Basreliefs 563, **564, 565,** 581; Statue 585
Visigoths, Christian: Toledo, Spain 728
Vitamin deficiency diseases 663
Vitamin E: Muscle regeneration 655, 663
Vitamins: Potatoes 670, 679
Vix, Vase of 485, 490
Vo Nguyen Giap 581
Vogel, Orville A. **805**
Vogt, Artur 38
Voiceprints: Western grebes 630-631, 635, 636
Voigt, Gerhard 37
Volcanic ash: Palouse Hills, Idaho-Wash. 801, 802, **806-807,** 807
Von Karajan, Herbert 48
Von Weizsäcker, Richard 36, 46, 51

W

Wachs, Alfredo **445,** 456, 457
Wachs, Susan **445**
Wadis: Egypt 199, 216, 430, **450-451,** 457
Waiters' race: Paris, France **489**
Waldheim, Kurt 306
Wałęsa, Lech Apr. supplement
Walewska, Countess Marie 188
Walton, Anthony 504, 506
Walvis Bay, South Africa 757, 764, 793; Fishing industry destroyed 764, 793, 796
Wandersleben, Dirk 46
Wandrille, Saint 510
Wargin, Ben 38, 40
Warsaw, Poland 419, Apr. special supplement
Warsaw Pact soldiers encircling West Berlin 36
Warwick (shipwreck) 67, 68, 70, 71
Washington (state): ***A Paradise Called the Palouse.*** By Barbara Austin. June, 798-819; Potato harvest 681, 687, 693
Washington State University 807; Women's crew **812-813**
Waste disposal: Ivujivik community, Canada 400
Water, underground: Australia 651; Egypt 191, 192-193, 198, 199, 200, 201, 220, 438
Water birds *see* Western grebes
Water buffalo: Kampuchea 594, 617, **620;** Taiwan 101
Water cannon 440
Water diversion: Canada 399, ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418;

Egypt 200, 202; Sudan **352-353,** 376-377; *see also* Irrigation
Water heaters, solar-powered 662
"Water Lilies" (Monet) 503
Water pollution: Tagus River, Spain 729, 734
Water resources: Egypt 191, 192-193, 198, 199, 200, 201, 220; ***Quebec's Northern Dynamo.*** By Larry Kohl. Mar., 406-418
Waterloo, Belgium 180; Battle 149, 180-181, **182-183;** Battlefield **184**
Watermen *see* Barge society
Wau, Sudan 359, 362
Waugal (Aboriginal legend) 662
Wedding (district), West Berlin 42
Weddings: Kentucky **532-533,** 535; Pokot people 133
Wei Wei agricultural area, Kenya: Pokot community 122-123, 133
Weissensee (district), East Berlin: Sports complex **23**
Wellington, Duke of 149; Battle of Waterloo 180, 181, 182
Wells: Western Desert, Egypt 198, 199, 217, **221**
Wen Tien-hsiang 94; Quoted 94
Wendorf, Fred 219
West Germany *see* Berlin, West
Western Australia: ***Perth—Fair Winds and Full Sails.*** By Thomas J. Abercrombie. May, 638-667
Western Desert, Egypt: ***Egypt's Desert of Promise.*** By Farouk El-Baz. Feb., 190-221
Agriculture 198, 199, 201, 207, **207,** 208, 216, 217; Future possibility 191, 198, 199, 200-201, 220; Sand and salt threats **202, 203**
Archaeological research 216, 217, **218,** 219, **219**
Area 198, 200
Aridity, degree of 200, 210, 219; Wet-dry cycles 200, 217, 220
Explorers, early 198-199, 210, 216, 217, routes 200-201
Geological research 211, **214, 215,** 216, **216-217,** satellite photography 199, 201, 208, 210-211, 216, *see also* Groundwater; Oil; Sand dunes; Yardangs, *below*
Groundwater 191, 192-193, 198, 199, 200; Exhaustion, possible 201, controversy over 220; Use, current **221**
Irrigation canals 201, 207, proposed 198, 200, 202
Map 200-201
Oases **192-193,** 198, 199, 200, 201, 202, **203, 206-207,** 208, 210, 220
Oil development possible 198, 220
Sand dunes **190-191,** 202, 206, **214-215,** research 208-210
Winds: Erosion 201, 210, 213, 216, remnants **194-195, 212-213, 216-217,** sand dune dynamics 201, 202, 206, 210
Yardangs (exposed rocks) **194-195,** 210, **212-213;** Sphinx theory 213, **213,** diagram **213**
Western Grebes: The Birds That Walk on Water. By Gary L. Nuechterlein. May, 624-637
Challenge and threat display 624, 626
Courting rituals 624, **624-625,** 626, **630, 632-633,** 635, 636
Diet 626, 631, 635
Diving 626, 631
Eggs **626,** 631
Feather eating 635, 636
Fish spearing 631, 635
Mobility, limited 626, 631, 632
Nests 626, **626, 627, 629,** 631, **634-635**
Range 629, 636; Map 629
"rushing" (water run) **624-625,** 626, **632-633,** 636
Terns, relationship with 630
Vocalizations: Calls, advertising 624, 630, 636, bouts 636, individual signatures 631, 635-636; Message-and-reaction 624, 630, 631, 635-636
"weed dance" 626, **632**
Wintering grounds 629; Map 629
Young 631, **631, 634,** 636, **637;** Color-signaling **634,** 635, 636; Shared care for 626, 631, 635
Wetlands *see* Delta Marsh, Manitoba; The Sudd, Sudan
Whale-watching: Hudson Bay region, Canada 384, 400
Whales: Belugas 384, 385, 397, **401;** *see also* Humpback whales
Whaling: Humpback whale target of 465, law protecting (1966) 475; 19th-century 404, 475
Wheat: Crossbreeding semidwarf varieties **805;** Palouse Hills, Idaho-Wash. 801, 803, fields **804, 805, 810, 816-817, 819,** shipping 818, yield 801, 802, 812, 814; Spain 729; United States' yield 801; West Berlin **44;** Western Australia 643, **658,** 659
White, Peter T. 549; ***Ancient Glory in Stone*** (Angkor temples). May, 552-589; ***Kampuchea Wakens From a Nightmare.*** May, 590-623
White Nile (river), Africa 352, 374, 376, 378
Whitman County, Wash. *see* Palouse Hills
Wild flowers: ***Hummingbirds: The Nectar Connection.*** By Paul W. Ewald. Feb., 223-227; Rhododendrons **706,** 720
Wildlife: Central America: ***The Amazing Frog-Eating Bat.*** By Merlin D. Tuttle, Jan., 78-91; Habitat destruction 352-353, 376-377, 416; Namibia **756-757,** 762, 768, 772, 776, **776-779,** 779, 782-783, 784, 793, **794-796;** North America: ***Henry Hudson's Changing Bay.*** By Bill Richards. Mar., 380-405; *see also* Armadillos; Western grebes
Wildlife-management: Namibia 776, 783, 794
Wildlife-watching: Hudson Bay region, Canada 384, 395, 400; Namibia 778, **778-779,** 779
Will They Survive? (Angkor temples). Introduction by Wilbur E. Garrett, Editor. May, 548-551
William the Conqueror: Childhood 481
Windhoek, Namibia 763, 765; Cape Dutch architecture **766-767;** Population 765; Segregation policies 765, 766, 767, 775
Windmills: La Mancha (region), Spain 734, **752-753**
Windsurfing: Sun Moon Lake, Taiwan **110-111**
Wines: Champagne (region), France 485, 487; Rice wine: Taiwan 110
Wingood, Allan J. **71**
Winter wheat: Palouse Hills, Idaho-Wash. **819**
Wolfe, Ben 755
Wolfskin **384**
Wolinsky, Cary, photographer: ***Perth—Fair Winds and Full Sails.*** May, 638-667
Wolstenholme Towne (site), Va.: ***New Clues to an Old Mystery.*** By Ivor Noël Hume. Jan., 53-77
Wood carvings: Aboriginals **663;** Spain, 18th century **228-229**
Wool dyeing 801
Wool industry: Australia **646-647,** 651
Woolly blue curls (flower) 226, **227**
World Food Program, U. N.: Aid to Kampuchea 604
World Health Organization: Immunology of leprosy 830
World Heritage Fund: Grant: Buddhist temple restoration 716
World hunger: Potato as solution 684-685, 693-694
World Potato Collection, Huancayo, Peru: Potato varieties 694
World Vision pediatric hospital, Kampuchea **604**
World War I: Battles: Champagne (region), France 487; Memorials: France 485
World War II: Berlin, Germany 2-3, 9, 17, 26, 46, 48; Bombing of France 481, 504, 507, 508, photo of destruction **509,** reconstruction **508-509;** Bombing of Japan 599; Japanese unmanned balloon flights across Pacific 513; Poland Apr. special supplement
World Wildlife Fund: Study grant: Humpback whale 466
Wrestling: Nuba tribespeople 367, **368-369**
Wright, Jonathan T. 708; Photos by **708, 709**
Wysong, Wendy **327**

X

X ray, skull: Wolstenholme Towne "Suburb" site, Va. **74**
Xining, China: Tibetan Buddhist

monastery near **256-257**
Xue Shan Xiang, People's Republic of China *see* Snow Mountain Commune

Y

Yaak, Atem 377
Yacht races: Australia **638-639**, 654, 659; West Berlin **44-45**
Yaks 247, 249, **260-261**, 698, 702, **718**, 720, 724; Dung fuel 252, 261; Food from 261; Woven yak-hair fabric 249, 250, **253**, 261
Yammit, Sinai Peninsula **420-421**, **446-447**, 455, 456-457, 459; Air base dismantled **457**; Moshavs near **445**, **453**
Yasovarman I, King (Khmer Empire) 560
Yellow River, People's Republic of China 248
Yom Kippur services: Yammit, Sinai Peninsula 456, 459
Yom Kippur war (1973): Bar-Lev Line assault 440, 444; Parade commemorating 430, 452, 454-455
York Factory (historical site), Canada **396**
Young China Party: Taiwan 115
Young Pioneers **14-15**, 33
Yuan (legislature): Taiwan 115, 119
Yungay, Peru: Earthquake (1970) 289, 303

Z

Zambezi River, Africa 780, 782
Zambia: Namibian refugees 775
Zamorano, Mariano 734
Zandes (tribespeople) 354, 355, 359, **363**, **379**
Zárate, Don Maximo 676
Zefat, Israel: Sister city 749
Zion Church, Taylor County, Ky. 543, 544
Zocodover, Plaza de, Toledo, Spain 732, 733
Zooplankton: Corals feed on 271
Zooxanthellae algae: Symbiosis with *Mastigias* jellyfish 282
Zungumbia, Andrea 355, 359

INDEXING STAFF

JOLENE M. BLOZIS *Editor*
MARTHA K. HIGHTOWER *Assistant Editor*
JEFFREY A. BROWN
GEORGE I. BURNESTON, III
COLLEEN B. DiPAUL
M. KATHLEEN HOGAN
ANNE K. McCAIN
BRIT A. PETERSON
MICHAEL G. YOUNG

Volume 162 July-December 1982

NATIONAL GEOGRAPHIC

INDEX

July-December 1982

VOLUME 162

PUBLISHED BY THE
NATIONAL GEOGRAPHIC SOCIETY
WASHINGTON, D. C.

NATIONAL GEOGRAPHIC SOCIETY

WASHINGTON, D.C.

Organized "for the increase and diffusion of geographic knowledge"

GILBERT HOVEY GROSVENOR
Editor, 1899-1954; President, 1920-1954
Chairman of the Board, 1954-1966

THE NATIONAL GEOGRAPHIC SOCIETY is chartered in Washington, D.C., in accordance with the laws of the United States, as a nonprofit scientific and educational organization. Since 1890 the Society has supported more than 2,200 explorations and research projects, adding immeasurably to man's knowledge of earth, sea, and sky. It diffuses this knowledge through its monthly journal, NATIONAL GEOGRAPHIC; its books, globes, atlases, filmstrips, and educational films; *National Geographic WORLD*, a magazine for children age 8 and older; information services; technical reports; exhibits in Explorers Hall; and television.

GILBERT M. GROSVENOR, President
OWEN R. ANDERSON, Executive Vice President
ALFRED J. HAYRE, Vice President and Treasurer
WILLIAM T. BELL, FREDERICK C. GALE, LEONARD J. GRANT, JOSEPH B. HOGAN, ADRIAN L. LOFTIN, JR., LEWIS P. LOWE, RAYMOND T. McELLIGOTT, JR., Vice Presidents
EDWIN W. SNIDER, Secretary and Corporate Counsel

BOARD OF TRUSTEES

MELVIN M. PAYNE, Chairman of the Board
ROBERT E. DOYLE, Vice Chairman
LLOYD H. ELLIOTT, Vice Chairman
President, George Washington University
THOMAS W. McKNEW, Advisory Chairman

OWEN R. ANDERSON
Executive Vice President, National Geographic Society
THOMAS E. BOLGER
Executive Vice President, American Telephone & Telegraph Company
FRANK BORMAN, Chairman of the Board and President, Eastern Airlines
J. CARTER BROWN, Director, National Gallery of Art
WARREN E. BURGER
Chief Justice of the United States
MICHAEL COLLINS
Vice President, Vought Corporation
GEORGE M. ELSEY, President, American Red Cross
WILBUR E. GARRETT
Editor, National Geographic
GILBERT M. GROSVENOR
President, National Geographic Society
ARTHUR B. HANSON, Attorney
CARYL P. HASKINS, Former President, Carnegie Institution of Washington
JEROME H. HOLLAND
Former U.S. Ambassador to Sweden
CARLISLE H. HUMELSINE
Chairman of the Board, The Colonial Williamsburg Foundation
MRS. LYNDON B. JOHNSON
CURTIS E. LeMAY, Former Chief of Staff, U.S. Air Force
LAURANCE S. ROCKEFELLER
Chairman, Memorial Sloan-Kettering Cancer Center
ROBERT C. SEAMANS, JR.
Henry R. Luce Professor of Environment and Public Policy, Massachusetts Institute of Technology
JAMES H. WAKELIN, JR., Former Assistant Secretary of Commerce for Science and Technology
CONRAD L. WIRTH, Former Director, National Park Service

Trustees Emeritus

CRAWFORD H. GREENEWALT
WM. McCHESNEY MARTIN, JR.
FREDERICK G. VOSBURGH
JAMES E. WEBB
LOUIS B. WRIGHT

COMMITTEE FOR RESEARCH AND EXPLORATION

MELVIN M. PAYNE, Chairman
T. DALE STEWART, Vice Chairman
EDWIN W. SNIDER, Secretary

BARRY C. BISHOP, HARM J. DE BLIJ, Professor of Geography, University of Miami, ROBERT E. DOYLE, GILBERT M. GROSVENOR, CARYL P. HASKINS, THOMAS W. McKNEW, BETTY J. MEGGERS, Research Associate-Anthropology, Smithsonian Institution, PETER H. RAVEN, Director, Missouri Botanical Garden, CHARLES H. SOUTHWICK, Professor of Biology, University of Colorado, GEORGE E. STUART, JAMES H. WAKELIN, JR., GEORGE E. WATSON, Curator of Birds, Smithsonian Institution, FRANK C. WHITMORE, JR., Research Geologist, U.S. Geological Survey, CONRAD L. WIRTH, LOUIS B. WRIGHT, and PAUL A. ZAHL

ASSISTANT VICE PRESIDENTS: James P. Kelly, Ward S. Phelps, Cletis Pride. **ASST. TREASURER:** H. Gregory Platts. **ASST. SECRETARY:** Earl Corliss, Jr. **ASSTS. TO THE PRESIDENT:** Joyce W. Graves, Thomas E. Kulikosky, Richard E. Pearson

ADMINISTRATIVE STAFF: *Accounting:* Dorothy L. Dameron, Jay H. Givans, Laura L. Leight, William G. McGhee, George E. Newstedt, David H. Peters. *Administration:* D. Evelyn Carnahan, Robert V. Koenig, Zbigniew Jan Lutyk, Marta M. Marschalko, Karen S. Marsh, Myra A. McLellan, Jennifer Moseley, Ross L. Mulford, Shirley Neff, Jimmie D. Pridemore, Joyce S. Sanford, Janet C. Soper, Frank M. Twigger. *Computer:* James G. Schmelzer, William L. Chewning, Ronald C. Kline, Richard A. Mechler, Harold E. Smith. *Educational Services:* Wendy G. Rogers, Dean R. Gage, Carl W. Harmon, Jr. *Employee Benefits:* Howard R. Hudson. *Membership Services:* Margaret L. Bassford, Robert C. Dove, Erma T. Goetzinger, William T. McDonnell, Paul B. Tylor, Dorothy M. Wagner, Marguerite M. Wise, Peter F. Woods. *Personnel:* Thomas L. Hartman, M.D., Robert E. Howell, Glenn G. Pepperman, Shirley N. Wilson. *Printing:* Joe M. Barlett, Frank S. Oliverio, Margaret A. Slifer, Hans H. Wegner. *Promotion:* Charles T. Kneeland, Robert J. Warfel, Eileen W. Bowering, James R. Dimond, Jr., Robert L. Feige, Joseph S. Fowler, Thomas M. Kent, Mary A. Mattingly, F. William Rath, Towne Windom. *Purchasing:* Robert G. Corey, Thomas L. Fletcher, Sheila H. Immel

ADVERTISING: *Director:* George E. Moffat, 1251 Avenue of the Americas, New York 10020. *Asst. to Dir.:* Eileen K. Ayvazian. *Assoc. Sales Director:* George W. Kellner. *Managers—East:* Bart W. McDonnell. *Midwest:* Robert R. Henn, Chicago. *San Francisco:* Cecil H. London. *Los Angeles:* Richard H. Lehman. *Europe:* Michel A. Boutin, 90 Ave. des Champs Elysées, Paris. *Business Manager:* Peter W. Michaels. *Production:* G. Sarita Lapham. *Marketing/Research:* Alex MacRae. *Promotion:* J. Robert Kelly. *Administration:* Blanche Coffey.

COPYRIGHT © 1983 National Geographic Society, 17th and M Sts. N.W., Washington, D.C. 20036.

MELVIN M. PAYNE *Chairman of the Board*

NATIONAL GEOGRAPHIC MAGAZINE

GILBERT M. GROSVENOR *President*
WILBUR E. GARRETT *Editor*
JOSEPH JUDGE *Associate Editor*

SENIOR ASSISTANT EDITORS

James Cerruti, *Contract Writers* John B. Garver, Jr., *Cartography* Robert E. Gilka, *Photography* William Graves, *Expeditions* Robert P. Jordan, *Special Projects* H. Edward Kim, *Layout* Edward J. Linehan, *Manuscripts* Samuel W. Matthews, *Production* O. Louis Mazzatenta, *Control Center* Howard E. Paine, *Art* Carolyn Bennett Patterson, *Legends* Thomas R. Smith, *Illustrations* Mary G. Smith, *Research Grant Projects* Kenneth F. Weaver, *Science* Ann K. Wendt, *Research*

TEXT

ASSISTANT EDITORS: Rowe Findley, Bart McDowell, Elizabeth A. Moize, Merle Severy
SENIOR WRITERS: Thomas J. Abercrombie, David S. Boyer, Thomas Y. Canby, Mike Edwards, William S. Ellis, Rick Gore, Noel Grove, John J. Putman, Ethel A. Starbird, Peter T. White
SENIOR EDITORIAL STAFF: Harvey Arden, Robert Booth, Kent Britt, John L. Eliot, Boyd Gibbons, Alice J. Hall, Bryan Hodgson, David Jeffery, Michael E. Long, Priit J. Vesilind, Gordon Young
EDITORIAL STAFF: Allen A. Boraiko, Larry Kohl, Douglas Lee, Louise E. Levathes, John L. McIntosh, Cathy Newman, Cliff Tarpy
RESEARCH: Frances H. Myers (Associate Chief); *Researcher-Editors:* Susan L. Anderson, Judith Brown, Lesley B. Rogers, Michaeline A. Sweeney. *Researchers:* Carolyn H. Anderson, Rebecca Beall, Polly M. Brown, Julia G. Grover, Ann B. Henry, Jan Holderness, Patricia B. Kellogg, Kathy B. Maher, Barbara W. McConnell, Jean B. McConville, Jeanne E. Peters, Frances W. Shaffer. *Geographic Information:* Bette Joan Goss. *Legends:* Victoria C. Ducheneaux, Abigail A. Tipton

ILLUSTRATIONS

PHOTOGRAPHERS: Dean Conger, Joseph J. Scherschel (Assistant Directors); James L. Amos, Joseph H. Bailey, James P. Blair, Victor R. Boswell, Jr., Jodi Cobb, Bruce Dale, David Alan Harvey, Otis Imboden, Emory Kristof, Joseph D. Lavenburg, Bianca Lavies, Bates Littlehales, Robert W. Madden, George F. Mobley, Robert S. Oakes, Steve Raymer, Robert F. Sisson *(Natural Science)*, James L. Stanfield, Volkmar Wentzel *(Archivist)*. *Administration:* Claude E. Petrone, Susan A. Smith
ILLUSTRATIONS EDITORS: W. Allan Royce (Assistant Director); David L. Arnold, Taylor Gregg, Bruce A. McElfresh, Charlene Murphy, Robert S. Patton, Elie S. Rogers, Jon Schneeberger, Susan Welchman
LAYOUT: Constance H. Phelps
ART: William N. Palmstrom, J. Robert Teringo (Assoc. Dirs.); Jan Adkins, Walter Q. Crowe, John D. Garst, Jr. (Asst. Dirs.); Elie Sabban (Production). *Artists:* Lisa Biganzoli, William H. Bond, John W. Lothers, Ned M. Seidler. *Map Editors:* John T. Blozis, Gus Platis. *Research:* Virginia L. Baza, Harold A. Hanson (Supvrs.); Ross M. Emerson, Margaret Deane Gray, Marguerite B. Hunsiker, Dorothy A. Nicholson. *Map Artists:* Isaac Ortiz, Leo B. Zebarth (Supvrs.); Iskandar Baday, Peter J. Balch, Snejinka Stefanoff, Alfred L. Zebarth
DESIGN: Charles C. Uhl, Betty A. Clayman, Robert E. Pullman
ENGRAVING AND PRINTING: William W. Smith (Director); James R. Whitney (Associate Director); Bill M. Aldridge, John T. Dunn

CARTOGRAPHY

Richard J. Darley (Senior Associate Chief); John F. Shupe (Associate Chief); Ted Dachtera, Richard K. Rogers (Asst. Chiefs); John F. Dorr (Art Director); Margery K. Barkdull, Karen F. Carrick, Charles F. Case, Henri A. Delanghe, Russel G. Fritz, Martin J. Golden, Charles W. Gotthardt, Jr., Thomas L. Gray, Catherine M. Hart, Harry D. Kauhane, Mary C. Latham, Mary Anne McAleer, Charles L. Miller, Roland R. Nichols, Douglas A. Strobel, Tibor G. Toth, Thomas A. Wall, Thomas A. Walsh, Susan Young

EDITORIAL SERVICES

ADMINISTRATION: M. Jean Vile (Asst. to the Editor), Elaine Rice Ames, Marie L. Barnes, G. Merrill Clift, Neva M. Collins, Lilian Davidson, Virginia H. Finnegan, Eleanor W. Hahne, Mary F. Klemann, Ellen E. Kohlberg, Lucille L. McInerney, Patricia M. Oakes. *Picture Requests:* Barbara A. Shattuck. *Correspondence:* Carolyn F. Clewell, Gwendolyn C. Blackman. *Indexes:* Jolene M. Blozis. *Travel:* Virginia A. Bachant
LIBRARIES: *Publications:* Virginia Carter Hills (Librarian); Patricia Murphy Smith, Susan M. Fifer, Carolyn Locke, Louise A. Robinson, Marta Strada. *Records and Illustrations:* Lorie Northrop (Director); L. Fern Dame, Mary Anne McMillen, M. Scott Bolden, Carolyn J. Harrison, Marguerite S. Northwood, Mennen M. Smith. *Films:* Betty G. Kotcher
NEWS SERVICE: Paul Sampson (Chief); Joy Aschenbach, Donald J. Frederick, Barbara S. Moffet, William J. O'Neill. *Radio:* Robert C. Radcliffe
PHOTOGRAPHIC LABORATORIES AND TYPESETTING: Carl M. Shrader (Director); Milton A. Ford (Associate Director); Lawrence F. Ludwig (Asst. Director); Herbert Altemus, Jr., Billy R. Barnett, Richard A. Bredeck, David H. Chisman, Ellwood M. Kohler, Jr., Geoffrey T. McConnell, William S. Petrini, Bernard G. Quarrick, Joan S. Simms, James H. Trott, Alfred M. Yee

RELATED EDUCATIONAL SERVICES OF THE SOCIETY

ROBERT L. BREEDEN *Vice President*

SENIOR ASSISTANT EDITORS: Donald J. Crump, *Special Publications and School Services;* Charles O. Hyman, *Book Service*
BOOK SERVICE: Kenneth C. Danforth (Assistant Director); Ross Bennett, Mary B. Dickinson, Karen F. Edwards, Robert C. Firestone, Anne Dirkes Kobor, J. Edward Lanouette, Carol Bittig Lutyk, Linda B. Meyerriecks, David F. Robinson, Shirley Scott, David M. Seager, Margaret Sedeen, George E. Stuart, Anne E. Withers
SPECIAL PUBLICATIONS AND SCHOOL SERVICES: Philip B. Silcott (Associate Director); William L. Allen, Jody Bolt, Margery G. Dunn, Toni Eugene, Seymour L. Fishbein, Ron Fisher, Patricia F. Frakes, William R. Gray, Barbara Grazzini, Sallie M. Greenwood, Mary Ann Harrell, Suzanne J. Jacobson, Bonnie S. Lawrence, Christine E. Lee, Jane R. McCauley, Tom Melham, Robert Messer, H. Robert Morrison, Thomas J. O'Neill, Thomas B. Powell III, Cynthia Ramsay, Jennifer C. Urquhart, George V. White, Merrill Windsor. *National Geographic WORLD:* Ralph Gray (Editor); Jacqueline Geschickter, Pat Holland, Ellen Joan Hurst, Tee Loftin, Margaret McKelway, Judith E. Rinard, Pat Robbins, Eleanor Shannahan, Veronica J. Morrison, Ursula Perrin Vosseler. *Educational Media:* George Peterson (Editor); Jimmie Abercrombie, James B. Caffrey
TELEVISION AND FILMS: Dennis B. Kane (Director); Sidney Platt (Manager, Educational Films); Donald M. Cooper, Anne B. K. Krumbhaar, Yeorgos N. Lampathakis, Louise C. Millikan, Marjorie M. Moomey, Nola L. Shrewsberry, Kathleen F. Teter, Carl E. Ziebe
AUDIOVISUAL: Joanne M. Hess (Director); Jon H. Larimore (Tech. Director); Ronald S. Altemus, Robert G. Fleegal, Paul Gorski, Gerald L. Wiley

Contents

Page

JULY 1982

EDITOR'S PAGE 1

IN THE WAKE OF SINDBAD 2
By Tim Severin, with photographs by Richard Greenhill

CARRARA MARBLE: TOUCHSTONE OF ETERNITY 42
By Cathy Newman, with photographs by Pierre Boulat

PERU'S PILGRIMAGE TO THE SKY 60
By Robert Randall, with photographs by Loren McIntyre and Ira Block

THE COUNTRY OF WILLA CATHER 71
By William Howarth, with photographs by Farrell Grehan

THE IVORY COAST—AFRICAN SUCCESS STORY 94
Article and photographs by Michael and Aubine Kirtley

UNEARTHING THE OLDEST KNOWN MAYA 126
By Norman Hammond, with photographs by Lowell Georgia and Martha Cooper

AUGUST 1982

EDITOR'S PAGE 141

PAPUA NEW GUINEA
I. NATION IN THE MAKING 143
By Robert J. Gordon, with photographs by David Austen
II. JOURNEY THROUGH TIME 150
By François Leydet, with photographs by David Austen

FLORIDA—A TIME OF RECKONING 172
By William S. Ellis, with photographs by Nathan Benn and Kevin Fleming

PLIGHT OF THE BLUEFIN TUNA 220
By Michael J. A. Butler, with photographs by David Doubilet and paintings by Stanley Meltzoff

PARAGUAY, PARADOX OF SOUTH AMERICA 240
By Gordon Young, with photographs by O. Louis Mazzatenta

MELVILLE BELL GROSVENOR, A DECADE OF INNOVATION, A LIFETIME OF SERVICE 270
By Bart McDowell

SEPTEMBER 1982

EDITOR'S PAGE 279

AVALANCHE!
By David Cupp
I. WINTER'S WHITE DEATH 280
II. "I'M OK, I'M ALIVE" 282
Photographs by Lanny Johnson and Andre Benier
III. BATTLING THE JUGGERNAUT 290

OUR NATIONAL FORESTS: PROBLEMS IN PARADISE 306
By Rowe Findley, with photographs by David Cupp
Double supplement included—*America's Federal Lands; The United States*

ROOSEVELT COUNTRY: T. R.'S WILDERNESS LEGACY 340
By John L. Eliot, with photographs by Farrell Grehan

THE BAHAMAS: BOOM TIMES AND BUCCANEERING 364
By Peter Benchley, with photographs by Bruce Dale

FINDING WEST AFRICA'S OLDEST CITY 396
By Susan and Roderick McIntosh, with photographs by Michael and Aubine Kirtley

Page

OCTOBER 1982

EDITOR'S PAGE 419
THE CHIP: ELECTRONIC MINI-MARVEL 421
By Allen A. Boraiko, with photographs by Charles O'Rear
CALIFORNIA'S SILICON VALLEY 459
By Moira Johnston, with photographs by Charles O'Rear
PÈRE DAVID'S DEER SAVED FROM EXTINCTION 478
By Larry Kohl, with photographs by Bates Littlehales
THAILAND'S WORKING ROYALTY 486
Photographs by John Everingham
THAILAND: LUCK OF A LAND IN THE MIDDLE 500
By Bart McDowell, with photographs by Steve Raymer
NEW DAY FOR ALASKA'S PRIBILOF ISLANDERS 536
By Susan Hackley Johnson, with photographs by Tim Thompson

NOVEMBER 1982

EDITOR'S PAGE 553
THE ANASAZI—RIDDLES IN THE RUINS 554
By Thomas Y. Canby, with photographs by Dewitt Jones and David Brill and paintings by Roy Andersen
PUEBLO POTTERY—2,000 YEARS OF ARTISTRY 593
By David L. Arnold
INSIDE THE SACRED HOPI HOMELAND 607
By Jake Page, with photographs by Susanne Page
THE MAKING OF AMERICA: 17 NEW MAPS TIE THE NATION TO ITS PAST . 630
By Wilbur E. Garrett, Editor
Double supplement included—*The Southwest; The Making of America*
THE LOST FLEET OF KUBLAI KHAN 634
By Torao Mozai, with photographs by Koji Nakamura and paintings by Issho Yada
HEAT PAINTS *COLUMBIA*'S PORTRAIT 650
By Cliff Tarpy
THE DISASTER OF EL CHICHÓN 654
By Boris Weintraub, with photographs by Guillermo Aldana E. and Kenneth Garrett
VOLCANIC CLOUD MAY ALTER EARTH'S CLIMATE 672
By Robert I. Tilling

DECEMBER 1982

EDITOR'S PAGE 685
A BURIED ROMAN TOWN GIVES UP ITS DEAD (Herculaneum) 687
By Joseph Judge, with photographs by Jonathan Blair
THE MEDITERRANEAN—SEA OF MAN'S FATE 694
By Rick Gore, with photographs by Jonathan Blair
Double supplement included—*The Historic Mediterranean; The Mediterranean Seafloor*
LOST OUTPOST OF THE EGYPTIAN EMPIRE 739
By Trude Dothan, with photographs by Sisse Brimberg and paintings by Lloyd K. Townsend
CONTRARY NEW HAMPSHIRE 770
By Robert Booth, with photographs by Sandy Felsenthal
FAMILY LIFE OF LIONS 800
By Des and Jen Bartlett
PRESIDENT'S REPORT TO MEMBERS: AN EXCITING YEAR OF DISCOVERY 820
By Gilbert M. Grosvenor

Index

VOLUME 162

JULY-DECEMBER 1982

July	pp.	1-140	October	pp.	419-552
August	pp.	141-278	November	pp.	553-684
September	pp.	279-418	December	pp.	685-824

Titles and illustrations in bold face

A

Abaco cays, Bahamas 374, 375, **380-381** *see also* Great Abaco
Abdullah (*Sohar* crewman) **27**
Abidjan, Ivory Coast: ***The Ivory Coast—African Success Story.*** By Michael and Aubine Kirtley. July, 94-125
Abidjis (people): Dipri festival **110-111,** 118-119
Aché Indians: Paraguay 264-265
Acoma Indians 590-591; Pottery **593, 596, 597-598, 604,** 605
Acoma Pueblo, N. Mex. 89, **590-591**
Acosta, Luis **213**
Acrobatic dancers: Ivory Coast **106, 107**
Adam: Islamic legend 18, 20
Adam's Peak, Sri Lanka **20;** Legend 18, 20
Adderley, Paul L. 375, 391
Adioukrous (people) 108, 119
Adriatic region: Bora wind 703, 722, 726; *see also* Rimini; Venice
Adriatic Sea: Bluefin tuna 227; Currents 703, 722; Sedimentation and subsidence 697, 722
Advanced Micro Devices 471; Head **463,** 467-468, 476; Videogame chips **428**
Aegean Islands, Greece: Geodynamics 705-707, 709, 710; Volcanoes **706-707,** 707, 709
Aegean plate (earth's crust) 705-706, 709, 710; Diagram **710-711**
Aegean Sea: ***The Mediterranean—Sea of Man's Fate.*** By Rick Gore. Dec., 694-737
Aeolian Islands *see* Lipari Islands
Afognak Island, Alaska 358
Africa: ***Finding West Africa's Oldest City*** (Jenne-jeno). By Susan and Roderick McIntosh. Sept., 396-418; Medieval trade route 12; ***The Mediterranean—Sea of Man's Fate.*** By Rick Gore. Dec., 694-737; *see also* Ivory Coast; Namibia
African plate (earth's crust) 701, 704, 705-706, 709, 710, 717; Diagram **710-711**
Agatti Island, India 4, 12
Agriculture: Computer applications 434-435; Land losses in California 459, 464, 471, 472; Soil enriched by volcanic ash 679
aini wood 4, **4-5,** 11-12
Air pollution: Athens, Greece 727; Silicon Valley, Calif. 465, 570; Volcanoes **654-655, 664-665,** 667, 672, 673
Airplanes: Drug smuggling 185, 191, 192, crashes **190,** 372-373, **372-373;** Recreational 459, ultralight **205;** Spraying **216**
Aizuwakamatsu, Japan: Integrated circuit manufacture **432-433**
Akans (people) 108
Akihabara district, Tokyo, Japan: Electronics shops 440
Alabaster: Cosmetic spoon **748, 749,** 752; Goblet **748, 749,** 752
Alaska: Avalanche hazard **292-293,** 304, 305; Coal lands 324; National forests **317, 318, 334-335,** 335, 339, 346, 358; Wildlife refuges 346, 358-359, 362, *America's Federal Lands; The United States.* Sept. supplement; *see also* Pribilof Islands
Albacore tuna **222,** 223
Albright, Horace M. 358
Albuquerque, N. Mex. **588,** 589, 590, 592
Albury family: Bahamas 374, 375, 391
Aldana E., Guillermo, photographer: ***The Disaster of El Chichón.*** Nov., 654-684
Aleut (language): Pribilof Islands, Alaska 550
Aleuts (people) 419; ***New Day for Alaska's Pribilof Islanders.*** By Susan Hackley Johnson. Oct., 536-552
  Culture 550, 552
  Entertainment 549, **549**
  Hunting **540,** 550, 552
  Modernity **548-549,** 550
  Population decline 539, 548
  Pribilof settlement 538
  Russian enslavement (1700s) 538, 550
  Surnames, origins of 550
  United States neglect and repression (1867-1951) 539, 543, 548, 550; Compensation settlement (1978) 548
Alexandria, Egypt: Polluted waters off 704, 727
Algeria: Crusts, stretching 701, 709
Alicante, Spain: Festival **698-699**
Allard, William Albert 141
Alligators: Florida 174, 195, 200, control 195, 200, 203, meat 195, 203
Alpha 66 military training camp 184, **196**
Alpine Experiment (ALPEX): Weather patterns studied 719, 722
Alpine Meadows (ski resort), Calif. 280; ***Avalanche! "I'm OK, I'm Alive!"*** By David Cupp. Sept., 282-289
Alps (mountains), Europe: Avalanches 290, 295, control 290, 292, 295, 297, **300-303,** 302-304; Geodynamics 700, 704, 710, 722, map showing 710-711; Weather 703, 719; *see also* Apuan Alps
Al-Sadi (imam of Jenne): Quoted 414, 416
Alta (ski resort), Utah 305
Altissimo, Mount, Italy **49,** 55
Alvarado, Humberto 184, **196**
Alvin (research submersible) **823;** Test dive to test a new electronic imaging system 821, 823
Amany, René 102
Amber jewelry: Fulani **406**
Amédée, Pierre 124
American plate (earth's crust) 93; Volcanoes 664
American Revolution: Loyalist refugees 370, 373, 374, 380
American Used Computer, Boston, Mass. **437**
America's Federal Lands; The United States. Sept. supplement
Ames Research Center, Calif. **436-437,** 673
Amoroso, Francesco **733;** *gelati* sculpted by **733**
Amphora: Cuello site, Belize 128
Amulet: Gold **740**
Anasazi (Indians):
  The Anasazi—Riddles in the Ruins. By Thomas Y. Canby. Nov., 554-592
  Abandonment of territory 561, 562, 565, 566, 567, 571, 588, 589
  Art: Murals **554,** 592; *see also* Rock art, *below*
  Arthritis 559, 570
  Astronomical devices *see* "Sun dagger," *below*
  Basketmakers (early Anasazi) 563, 565, 566, 589
  Branches *see* Chaco Anasazi; Kayenta Anasazi; Mesa Verde Anasazi; Rio Grande Anasazi
  Buildings: Cave rooms **578,** 592; Cliff dwellings **556-559,** 562, 567, 588-589, 592; Construction *see* Pueblos; Fire damage 563, 582; Pit houses 563, 565, 566; *see also* Kivas, *below*
  Communications network 585, 586, 588
  Environment, harshness of

554, 562, 565, 566, 571, 588, 589
Irrigation systems *see* Water-control devices, *below*
Kivas 565, 570, 578, 579, 582, **584, 586-587,** 589, 592; Murals **554,** 592
Map of lands 566-567
Men's roles **569,** 570, **574, 575,** 578, **584**
Origin of name 562
Roads 562, 566, 567, **568, 569,** 572, 582, 585, 586, 587; Map of system 569
Rock art 562, 570, **577, 579,** 589, 592
Satellite communities *see* Outliers
"Sun dagger" **580-581,** 585
Trade with Mexico 567, 572, 578, 585
Water-control devices 562, 565, 566, 568, 582; Chaco Anasazi 567, 570, 577, 578-579, 585, 588; Rio Grande Anasazi 592
Women's roles 568
Cliff dwellings **72-73**
Pueblo Pottery—2,000 Years of Artistry. By David L. Arnold. Nov., 593-605
Ancestor worship: Ivory Coast 104, 122, 123, statuettes **125;** Jenne-jeno (site), Mali 398, 411, statuettes **398,** 411
Anchorage, Alaska: Van wind-blasted around a tree **296**
Andermatt, Switzerland: Avalanche-barrier forest **291,** 302
Andersen, Roy, artist: ***The Anasazi—Riddles in the Ruins.*** Nov., 554-592
Andes (mountains), South America 141 *see also* Qoyllur Riti
Andrews, E. Wyllys, V 137
Andros (island), Bahamas 370, 388-391, 394, 395
Androscoggin River, Maine-N. H. **776-777,** 792
Angeles National Forest, Calif.: Forest fire **328-329;** San Gabriel Canyon **338**
Angkor Wat (temple), Kampuchea: Melville Bell Grosvenor's visit **271,** 275
Animal behavior: ***Family Life of Lions.*** By Des and Jen Bartlett. Dec., 800-819
Animals *see* Birds; Endangered species; Wildlife; *and listing under* Fishes
Animism: Hopi beliefs 616, 619, 622 *see also* Eagle sacrifice, Kachinas; Ivory Coast 100, 101, 106, 109, masks 100, 112, **112,** 123-124, rituals **109-111,** 112, 118-119, 122, 123, 124
Antelope Society, Hopi 622
Anthropology, cultural *see* Ethnology
Apache Indians 592
Apennine Mountains, Italy: Formation 709, 710, diagram showing **710-711;** *see also* Apuan Alps
Aphrodisiacs 538, 552
Appalachian Mountain Club (AMC) 792
Apple Computer, Inc. 468-469, 476; Co-founders 443, **463,** 468, 469; Computer used by Aleuts 550; Production line **442**
Apuan Alps, Italy: ***Carrara Marble: Touchstone of Eternity.*** By Cathy Newman. July, 42-59
Apulian plate (earth's crust) 710; Diagram **710-711**
Aquaculture: Bluefin tuna **236-237,** 238, 239; Yellowtail 237, 238
The Arabian Nights Entertainments (The Thousand and One Nights) 6, 18; Illustrations from **11, 21, 29;** 1932 edition cover **2**
Arabian plate (earth's crust) 705, 710, 717
Arabian Sea: Monsoon winds 14; *Sohar* voyage 14-15
Arabs: Polygamy among seamen 18; Seamanship in Middle Ages 12, 14, navigational techniques 12, 14, 22, present-day 2, 14, 15; Shipbuilding traditions 2, 4, 6, 11, 12, *Sohar* construction **4-5,** 12-13; Trade, medieval 11, 12, 15; West Africa 402, 414
Aranyaprathet, Thailand 518-519
Arawak Indians: Bahamas 375, 377-378, enslaved by Spanish 370, 373, 378
Archaeological excavations supported by NGS 820-821
Archaeology 1; ***The Anasazi—Riddles in the Ruins.*** By Thomas Y. Canby. Nov., 554-592; ***A Buried Roman Town Gives Up Its Dead*** (Herculaneum). By Joseph Judge. Dec., 687-693; ***Finding West Africa's Oldest City.*** By Susan and Roderick McIntosh. Sept., 396-418; ***Lost Outpost of the Egyptian Empire.*** By Trude Dothan. Dec., 739-769; Paraguay **244,** 250; ***Unearthing the Oldest Known Maya.*** By Norman Hammond. July, 126-140
Archaeology, underwater 821; ***The Lost Fleet of Kublai Khan.*** By Torao Mozai. Nov., 634-649
Arctic blue fox **547;** Adaptation 547
Argentina: Food-export ranking (1982) 504
Arizona **72-73,** 85, 88, 346, 358; ***Inside the Sacred Hopi Homeland.*** By Jake Page. Nov., 607-629; National forest 313; *The Southwest,* The Making of America series. Nov. supplement
Arms, electronic **422**
Arnold, David L.: ***Pueblo Pottery—2,000 Years of Artistry.*** Nov., 593-605
Arrigo, Gaetano 713, **714**
Arroyo Hondo Pueblo, N. Mex. 589
Arsenic: Electrical conductor 443
Art: Illumination **11, 21, 29;** Murals **554,** 592; *see also* Folk art; Rock art; Sculpture
Art deco window: Senator Hotel, Miami Beach, Fla. **206**
Art thieves: Jenne-jeno (site), Mali **418**
Arthritis: Anasazi 559, 570; Liniment for 210; Mayas 129
Artificial intelligence: Potential for 421, 425, 445-446, 448, 451, 456; Programs for 445, 446
Artificial limbs, electronic **422**
Ashanti Kingdom 108
Asia: Golden Triangle narcotics trade 493, 494-495, 504, 506, 507, 523, 526, 527, 532; Plate tectonics 824; Prehistoric mammals 704, 705; *see also* China; Deir el-Balah, Gaza Strip; Japan; Thailand; *and* Sindbad
ASK Computer Systems, Silicon Valley, Calif. 463, 466-467; President **463,** 466-467
Assassinations: McKinley 344, 347, 354; Somoza 258, 269
Astronomical devices: Anasazi "sun dagger" **580-581,** 585
Astronomy: NGS to sponsor a new survey of the sky 820
Asunción, Paraguay 240, 242, **242-243, 244,** 251, **252-253,** 253, 258; Folk ballet **251;** Gymnasium **256-257;** Newspaper office **254**
Aswan, Egypt: Gorge 705
Aswan High Dam, Egypt: Environmental problems 726, 727-729
Atari Incorporated: Video games **441,** 450
Athens, Greece: Pollution 727
Athletic performance: Computer application **424**
Atlantic Ocean: Floor map **822-823;** Mediterranean Sea, blocked from 705, 712, flows 703, 724-725, 726; Weather **702,** 703, 718, 719; *see also* Bluefin tuna
Atlantic Undersea Test and Evaluation Center (AUTEC), Bahamas 370, 388-389
Atlantis (legendary continent): Aegean crust sinking resembles 706
Atlas Mountains, Africa: Formation 710, diagram showing **710-711**
Atlases, NGS 275; *National Geographic Atlas of the World* 270; *People and Places of the Past,* an illustrated cultural atlas 824
Atomic research laboratory: Stanford University, Calif. **477**
Augustus, Emperor (Rome): Marble quarrying 44, 46-47
Auklets 552; Parakeet auklets **547**
Austen, David 147; photographer: ***Papua New Guinea.*** Aug., 143-171
Australia: Aid to Papua New Guinea 147, 171, governing of (1906-

1975) 143, 147, 150, 155, 161, 163, 164, investments in 170; Bluefin tuna import 232; Food-export ranking (1982) 504
Austria: Avalanche victims 290
Autochromes 273
Automobile assembly plants: Robots 450-451, **454-455**
Automobiles: Air pollution 470; Computerized equipment **452, 453**
Avalanche! By David Cupp. Sept., 280-305
Avalanche-control teams 280, 287, 288, 295, 297, 305; Explosives and cannon 287, 295, 297, **298-299,** 305
Barriers 280, **291,** 297; Fence-like structures 297, **300-303;** Forests **291,** 302; Splitter wedges 297, **303**
Blast waves 280, 282, 290, 295, 297, 305
Fatalities 280, 287, 288-289, 290, 295, 297, 303, 304
Forecast centers 304
Rescue: Companion rescue 303, 304; Dogs 282, 284, 303, **304;** Probe sticks 303; Radio signal 298; Teams 282, 283, 284-285, 288-289, 298, 303, 304; Transceiver 303, 304
Research 280, 302-303, 304-305
Safety education 282, 304-305
Slide paths and chutes **281, 286-287, 292-293, 298-299, 302-303,** 305
Snow: New 282, 294, 295, 297, 298, blizzards 282, 287, 294, 304, 305; Old 294; Research 302-303, 304
Snow dust **281,** 290, **292-293,** 297, **299,** 305; Diagram **295**
Speed 287, 290, 295
Structural and mechanical properties 280, 287, 290, 295, 297; Diagrams **294, 295**
Survivors 280, 282, **283,** 284-285, **285,** 287, 288-289, 295, 304; Radio locator 298
Thermal properties 280, 303
Triggering of 280, 287, 290, 295, 297, **298-299,** 305
Winds 282, 289, 295, 296, 304
Worst 295
Ax, greenstone **130,** 134
Ayutthaya, Thailand: Cottage industry 496
Azores high (weather pattern) 703

B

Babi, René 100, 119
Baby naming: Hopi 619, **624,** 628
Baca, Thailand: Settlers 523
Back Creek Valley (village), Va. 74
Bacon (computer program): Intuitive thinking, approximation of 446
Badlands region, N. Dak. 344, 347, **348-349**
Bahama Islands, Atlantic Ocean: ***The Bahamas: Boom Times and Buccaneering.*** By Peter Benchley. Sept., 364-395; Mediterranean Sea water 726
Baladi, Roland 42, 58; Sculpture by **42-43**
Baldaccini, César 44; Sculpture by 44, **44, 45,** 48
Balearic Islands, Spain 699; Satellite image **702**
Ballard, Robert D. 824
Ballet Folklorico Municipal, Asunción, Paraguay **251**
Ballinger Canyon, Calif. 334
Bamako, Mali 114, 408, 417; Jenne-jeno artifacts 418
Ban Phatthaya, Thailand: Bars attracting U. S. servicemen **518**
Ban Sangae (refugee camp), Thailand 519, 522
Bandelier National Monument, N. Mex. 592; Cave **578**
Bang Pakong River, Thailand 518
Bangkok, Thailand **488-489,** 500, 504, 507, **508-511,** 512, **513,** 515, **516-517, 524-525;** Palaces 486, **486-487, 490,** 492, 494; Temples **499, 500-501, 509,** 512, 518
Bangkok Bank: Chairman **521**
Bangolo, Ivory Coast: Mask chief 123-124
Bani River, Africa: Archaeological site *see* Jenne-jeno; Floodplain 398, **400-401**
Banks and banking: Bahamas 370, 371, 379, 383, 395; Electronic fund transfer 456
Baoulés (people) 108, 114, 122-123; Name origin 108; Religious practices 122, 123, 124; Sculpture by **125**
Bar, open-air: Treichville, Ivory Coast **104-105**
Bar Igea, Pietrasanta, Italy 48
Barbate, Spain: *almadraba* (trap fishery) 228, 239
Barge: Thai royal barge **488-489**
Bartlett, Des and Jen: ***Family Life of Lions.*** Dec., 800-819
Basilisk: Costa Rica 824
Basketmakers (early Anasazi) 563, 565, 566, 589
Bass, George F.: Ottoman shipwreck excavation 820
Bath, public: Herculaneum, Italy 687; Doorway **692**
Battling the Juggernaut (Avalanche). By David Cupp. Sept., 290-305
Baykal, Lake, Siberia, U.S.S.R.: Plate tectonics 824
Beads: Carnelian 748, **750-751,** 752; Cuello site, Belize 134, **134, 135,** 138; Gold 748, **750-751,** 752; Jenne-jeno (site), Mali 398, 400, 405, 407
Bear paw motif: Pueblo pottery **597, 605**
Bear Springs, Ariz. 612
Bear Strap clan: Hopi 623
Beaver Creek Resort, Colo. **336-337**
Bedford, Duke of, 11th: Père David's deer 479, 480
Bedizzano, Italy **47**
Bedouin workers: Deir el-Balah archaeological site, Gaza Strip 746, 752
Beer can, giant: Glader Park diner, Tamiami Trail, Fla. **202**
Beetz, Carl 134-135
Belier (oil field), Ivory Coast **120**
Belize: ***Unearthing the Oldest Known Maya.*** By Norman Hammond. July, 126-140
Bell, Alexander Graham 270, 272, **272,** 273
Bell, Alexander Melville **272**
Bell Telephone Laboratories 429, 444, 454-455, 468, 471
Benchley, Peter: ***The Bahamas: Boom Times and Buccaneering.*** Sept., 364-395
Benier, Andre, photographer: ***Avalanche! "I'm OK, I'm Alive!"*** Sept., 282-289
Benn, Nathan, photographer: ***Florida—A Time for Reckoning.*** Aug., 172-219
Bering Sea **536, 540,** 547, 552; Oil exploration, proposed 552
Berlin, N. H. **776-777,** 789, 792
Bermudians: Bahamas 373, 378, 383
Berryman, Clifford K. 359
Betatakin Ruin, Ariz. **606,** 612
Bétés (people) 108
Bethel family: Bahamas 374, 383
Beypore, India: Poon trees 5; Sail construction **16-17,** 18; *Sohar* landfall 15
Bhumibol Adulyadej, King (Thailand) 507; ***Thailand's Working Royalty.*** Photos by John Everingham. Oct., 486-499
Bible 742, 762-763; Quoted 763
Big Cottonwood Canyon, Utah: Avalanche **280-281,** 304
Big Cypress Swamp, Fla.: Airplane crash **190**
Bigeye tuna **222,** 223
Bighorn sheep 311, **314**
Biju-Duval, Bernard 704
Bill Williams Mountain, Ariz. 612
Billesbach, Ann 81
Biltmore estate, near Asheville, N. C.: Forestry experiments 324
Bimini Islands, Bahamas: Big-game fishing 370
Biomedical design: Microelectronics 423
Birch, Dick and Rosi 389, 390
Bird motifs: Pueblo pottery **593, 595, 600-601**
Bird sanctuaries: Culebra Bird Reservation, Puerto Rico 347, 362; Pelican Island, Fla. 346, 350, **353;** Pribilof Islands, Alaska 546, 547, 552; Yukon Delta, Alaska 358-359
Birds: Endangered species 313, brown pelicans 350-351, 352,

362, dusky seaside sparrows 200; Migration 351, 359; *see also* Golden eagles; Seabirds
Birkner, John **475**
Bis sa'ani Pueblo, N. Mex. **574-575**
Biscayne Bay, Fla.: Haitian refugees **188-189**
Bisel, Sara **688, 820,** 821
Bison, American **342-343,** 344, 347, 350, 631
Bitterroot National Forest, Mont.: Clear-cutting 319, 321
Black Lahu (people) **532, 533**
Black Mesa, Ariz. 610, 626
Blackleaf game range, Mont.: Oil wells 311, 313
Blackware (pottery) **596, 597, 598, 605;** Firing process 596
Blair, Jonathan, photographer: ***A Buried Roman Town Gives Up Its Dead*** (Herculaneum). Dec., 687-693; ***The Mediterranean—Sea of Man's Fate.*** Dec., 694-737
Blanding, Utah 589
Blizzards: Avalanche formation 282, 287, 294, 304
Block, Ira, photographer: ***Peru's Pilgrimage to the Sky.*** July, 60-69
Bluefin tuna:
Plight of the Bluefin Tuna. By Michael J. A. Butler. Aug., 220-229
Ages attained 223, 231
Aquaculture **236-237,** 238, 239; Captive spawning, first 237, 239
Cannery use 227
Eggs 224
Feeding **220-221, 228-229,** 235; Consumption 235; Method 235-236
Fishing industry 222, 223, 224, 227-228, **230,** 231, 232-233, **234,** 239; Catch 223, 227, **230,** 231, **234,** decline 227, 228, 231; Moratorium 231-232, **234**
Growth rate 224, 239
Hatcheries proposed 238
Mercury 225, 227, 232, 235
Migration 223-224, 228, 232; Routes 222; Transatlantic 224; Weight gained 235
Muscles: Power related to temperature 232, 238; Proportion of weight 223, 232
Physiology 223, 236-237, 238
Predators 223, 232; Killer whales 223, **232**
Ranching 220, 225, 226, 233, 235; Holding pens **220-221, 224-225,** 233, 235
Range 223, 224, 232; Map 222; *see also* Migration, *above*
Spawning 224, **233;** Grounds 223, 232, map locating 222
Speed 223, 228, 232: Anatomic contributions to 223, 232, 235
Sportfishing 223, 231, 232-233; World's record catches 223
Tagged and monitored 224, 235
Weight, maximum 223, 231
Sicily **735,** yield decrease 735
Blunt-nosed leopard lizard 334
Boat people: Cuban 185, 189, 210-211; Haitian **188-189,** 192; Vietnamese 30, 35, *Sohar* encounter 13, 30, **34-35,** 38
Boats: Catamaran **146;** Leather-and-wood 5, 6, 7, 11, 14; Roman era **691;** *see also Sohar*
Bob Marshall Wilderness, Mont.: Oil drilling controversy 311, 313
Bobos (people): Funerary urns 411
Bocca Nuova (active crater), Mount Etna, Italy 712
Boesch, Christopher and Hedwige 115, 117
Bolivia: Inventory of rare species 820
Boll weevils: Florida 210
Bolle, Arnold **312,** 321
Bones: Aegean Islands **704,** 705, 706; Ancient: Preservation 688, 692, 820-821, acrylic-resin solution **688;** *see also* Skeletons
Bonfires of St. John (festival): Spain **698-699**
Bonnot, Dao 123-124
Books, NGS: *Exploring Our Living Planet* 823, 824, ocean floor map **822-823;** *People and Places of the Past* (an illustrated cultural atlas) 824; *White House* guidebook presentation **274**
boom (dhow): ***In the Wake of Sindbad.*** By Tim Severin. July, 2-41
Boom Times and Buccaneering: The Bahamas. By Peter Benchley. Sept., 364-395
Boone, Daniel 310
Boone and Crockett Club 344, 350, 358
Booth, Robert: ***Contrary New Hampshire.*** Dec., 770-799
Bora winds: Adriatic coast 703, 722, 726
Boraiko, Allen A.: ***The Chip: Electronic Mini-marvel.*** Oct., 421-457
Bosporus bridge, Istanbul, Turkey **736-737**
Bosque Redondo, N. Mex. 610
Bottle dance, Paraguayan **251**
Bougainville, Papua New Guinea: Copper mine 161, **162-163,** 170
Boulat, Pierre, photographer: ***Carrara Marble: Touchstone of Eternity.*** July, 42-59
Boyscout, Peter 359, 362
Bozo people: Houseboat **416-417**
Branscomb, Lewis M. 441, 444
Braziers: Jenne-jeno (site), Mali **412-413**
Breeden, Robert L. **276**
Brendan, Saint 5, 6
Brendan (leather-and-wood boat) 5, 6, 7, 11, 14
Brevard County, Fla.: Population growth 181
Bricks, mud: Deir el-Balah (site), Gaza Strip 752, 753, 757, 760, 762
Brill, David, photographer: ***The Anasazi—Riddles in the Ruins.*** Nov., 554-592
Brimberg, Sisse, photographer: ***Lost Outpost of the Egyptian Empire.*** Dec., 739-769
British Columbia (province), Canada: Avalanche control 295, 297
Bronze Age 739, 742, 763; Mediterranean Sea minerals 717-718
Bronze objects: Jug **749;** Knife with cloven hoof handle 748, **752;** Mirror 748, **749;** Platter **749;** Wine-serving set 748, 752, **754**
Bronze seal: Mongol **640,** 648
Broward County, Fla. 193 *see also* Fort Lauderdale
Bruhns, Karen **129,** 137
Buak Chan, Thailand: Headman 523, 526
Bubble memory chip 444
Buck, Randy 287, 288, 289
Buddha: Images of 512, 514
Buddhism: Mongols 646; Sri Lankan celebration **19;** Thailand 490, 495, 498, 500, 507, 508, monks 491, 496, **496-497,** 500, **500-501,** 504, 512, 514, 518, 534, The Supreme Patriarch 518, temples **499, 500-501, 509,** 512, 518
Buffalo *see* Bison, American
Buffalo dance: Hopi 616, 622; Dancers **617**
Bureau of Indian Affairs (BIA) 623, 625
Burial customs: Ancient Egyptians 748, 752, 757, 760, 766, 768; Maya 128, **130, 131,** 132, 135, 137
A Buried Roman Town Gives Up Its Dead (Herculaneum). By Joseph Judge. Dec., 687-693
Burkholder, Frank 258
Burma 491, 507, 532; Civil war 504; Smuggling 504, jewels 504, 520, 523, narcotics 493, 504, 506, 523
Burros: Adoption program 314
Burroughs, John 344, **346,** 360
Burrows, Jason 386
Burwell, Dave **327**
Bush, George 192
Butler, Michael J. A. 222; ***Plight of the Bluefin Tuna.*** Aug., 220-239
Butterfly dance: Hopi 622
Butterfly hairstyle: Hopi **629**
Byrd, Vernon 359, 362
Byrne, John 357

C

Cacao 99, 100, 101, 108, 120, 122, 155, 164, 679
Cache, Okla. 350
Caduceus (medical computer program): Diagnosis, reliability of 446
Caillié, René: Quoted 414
Cairo, Egypt: Ancient gorge 705
Calf, newborn **83**
Calicut, India 15, **15,** 18
California 419; Avalanche 280, 282, **284-289;** ***California's Silicon***

Valley. By Moira Johnston. Oct., 459-477; National forests 313, **314-315**, 324, 334, 339, forest fire **328-329**, map 312; Space shuttle landing **650-653**
California condor 313, 339
California Institute of Technology: Computer chip design 441
Cambodia *see* Kampuchea
Cameron, Jack **313**
Campbell, Brooks 210
Canaan (ancient region) 742, 743, 752, 753, 762, 763 *see also* The Exodus
Canada: Avalanches 295, **296**, control 295, 297; Food-export ranking (1982) 504; Geologic fault 93; Sealing treaty 538, 539, 544; *see also* Nova Scotia
Canadian Hydrographic Service: Charts of the seafloors 821
Canals: Florida 174, 183, alligators 174, 195, 200, 203
Canby, Thomas Y.: ***The Anasazi—Riddles in the Ruins***. Nov., 554-592
Cannibalism: Anasazi 570; Carib Indians 378; Sumatra 23, Sindbad legend 23
Cannon fire: Avalanche control 287, 295, 297
Cannon Mountain, N. H. **798**, 799
Canteens: Pueblo pottery **596, 598**
Canterbury, N. H.: Shaker community 795, eldresses **794**
Canton, People's Republic of China *see* Guangzhou
Canyon de Chelly, Ariz.: Cliff dwellings **72-73**, 562, 589
Canyon Diablo, Ariz. 626, **626**
Cape Canaveral, Fla. *see* John F. Kennedy Space Center
Capri (island), Bay of Naples, Italy 727
Carib Indians 378
Caribbean Islands National Wildlife Refuges, Puerto Rico 347, 362
Caribbean National Forest, Puerto Rico 313, 316, 339, 347
Caribbean region *see* Puerto Rico
Caribou National Forest, Idaho: Mabie Canyon **308-309**
Carmichael, Leonard **274**
Carnegie-Mellon University, Pittsburgh, Pa.: Artificial-intelligence research 446, 451
Carnelian beads 748, **750-751**, 752
Carnelian hieroglyphic seal **753**
Carrara, Italy 44-45, **59**; Marble studios **42-43**, 44, **44**, 48, 58; Sculptors 45, 48, annual contest **52, 53**
Carrara marble: ***Carrara Marble: Touchstone of Eternity***. By Cathy Newman. July, 42-59
Characteristics 45, 55, 58
Cutting wire 48, **50-51** 52, 56
Deposits **48**, 52
Finest grades 48, 55
Geological formation 45
Hauling, traditional method of 52, **56**
Quarrying of 44, 48, **50-51**; Hazards to workers 52, 55, **56, 57**; Methods **49, 50-51**, 52, 56; Safety laws 52, 55, 57; Tailings 45, **46-47, 49, 56-57**
Uses 44, 48, 51, 55, 58; Sculpture **42-43**, 44, **44**, 45, 51, **52, 53, 54**, 55, **58**
Varieties 55
Yield 44, 47
carretas (ox carts) **268-269**
Carrione River, Italy 45
Carrollton, Texas: Computer manufacture **442**
Carter, Forrest L. 443, **446**
Casa Rinconada, Chaco Canyon, N. Mex. **586-587**
Cascades (mountain range), Oreg.: Clear-cutting **320**
Casinos: Bahamas 377, 379, 395
Castro, Fidel 189; Overthrow plotters 184-185, **196**
Catamaran **146**
Cather, Willa 778; ***The Country Of Willa Cather***. By William Howarth. July, 71-93
Adolescence 81
Birthplace 74
Character 74
Childhood 74, 75
Dress 85, 88
Education 71, 82, 84, 85
Grave 93
Homes 74, 76, **80**, 81, **81**, 88, 91, 93
Honors 74
Journalism career 74, 75, 84, 85
Literary admirers 74
Medal **75**
Parents **80**
Photographs of **71, 75, 80, 84**
Physical appearance 71, 85
Travels 73, 84, 85, 88-89
Works 75, 93; First composition 74; Novels 71, titles 75
Cather's Run, Va. 74
Cats: Mount Washington Observatory, N. H. 795; Samos, Greece **708-709**
Cattle: Electronic monitoring of 435; Mali 398, **402-403**; Paraguay 242, 255, 258, **262-263**
Cave dwellers *see* Cliff dwellers and dwellings
Cave painting: Tuna 223
Caves: New Mexico **578, 579**, 592; Utah **573**
Cedar Key, Fla. 210
Central America *see* Belize
Ceramics: ***Pueblo Pottery—2,000 Years of Artistry***. By David L. Arnold. Nov., 593-605
César (César Baldaccini) 44; Sculpture by 44, **44, 45**, 48
Chaco (region), Paraguay 243, 244, 245, 258: Cattle ranches 255, 258, **262-263**; Indians 264, **264-265**, 265, 268; Mennonites 258-259, **260-261**
Chaco Anasazi: Agriculture **574-575**, 585; "Chaco phenomenon" (cultural peak) 570, 574, 585, 586, explanations 572, 585, 586, 587; Population growth 595; Pottery **595**
Chaco Canyon, N. Mex.: Aerial view **564**; Anasazi *see* Chaco Anasazi; Pottery **595**; Pueblos 557, 566, 568 *see also* Outliers, Pueblo Alto, Pueblo Bonito; Steps, carved **565**, 582; "sun dagger" **580-581**, 585
Chaco Center, University of New Mexico 563, 582; Director *see* Judge, W. James
Chaco Culture National Historical Park, N. Mex.: Map 569; *see also* Chaco Canyon
Chaco War (1932-1935) 245, 250
Chaco Wash, N. Mex. 578
Chacoans *see* Chaco Anasazi
Chakri Dynasty 419, 507; ***Thailand's Working Royalty***. Photos by John Everingham. Oct., 486-499
Chamberlain, Neville 390-391
Chan, Sir Julius 147, **159**, 162, 166, 170
Chanthaburi, Thailand: Gemstones 520
Chao Phraya River, Thailand 507, **508-509**, 512; Royal barges **488-489**
Chapin Mesa, Mesa Verde National Park, Colo. 88
Chapman, Frank M. 350
Chapultenango, Mexico: El Chichón eruption aftermath 667, 669, **669, 670**; Rebuilding 684
Charon's Garden, Okla. 350
Charting techniques: Ocean floor 821, 824
Chase Sardi, Miguel **254**
Chávez, Federico 256
Chávez, Juan R. **256**
Chemical pollution: Electronics industry: Santa Clara County, Calif. 470
Chert daggers, ceremonial: Maya 128, **130, 133**, 134
Chetlat (island), India: *Sohar* landfall 15
Chheng, Samot and son **466**
Chiang Mai, Thailand 523, 527, 528, **534-535**; Handicrafts 534-535; Population 507; Teak harvest near **520-521**
Chiang Saen, Thailand: Riverside changes 522
Chiapas (state), Mexico *see* El Chichón
Chimney Butte (Theodore Roosevelt's cabin) 344, 347, **348**
Chin Sophonpanich **521**
China: ***The Lost Fleet of Kublai Khan***. By Torao Mozai. Nov., 634-649; Mosque construction (A.D. 627) 40; Porcelain, 16th-century **481**; Trade, medieval 12, 13, 14
China, People's Republic of: Earthquakes 824; Merchant seamen **41**; Panda protection 824; *Sohar* voyage 11, 13, 19, 30, **38-41**; *see also* Père David's deer
Chino, Marie Z. 597; Pottery **597**

Chips (integrated circuits) 419; ***California's Silicon Valley.*** By Moira Johnston. Oct., 459-477; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457
Chitralada Palace, Bangkok, Thailand **486-487,** 492, 494
Cholera epidemic: Naples, Italy (1973) 715, 721
Chopa Pou (Indian reservation), Paraguay 264
Chua, H. T. **475**
Chugach National Forest, Alaska **317,** 358
Chulabhorn, Princess (Thailand) 496
Chulalongkorn, King (Thailand) 491, 494
Cigar making: Tampa, Fla. 211, 212, **213,** 217
Circuit-board manufacture 466, **467**
Citizens Against Toxic Sprays 333
Citrus industry: Florida 183, 211, **211,** 217, 218; Paraguay 242
Civil rights suits: Aleuts 548
Claudius (Roman Emperor) 704; Villa probably owned by 723, marble remnants **722, 723**
"clean rooms": Chip fabrication **426-427,** 434
Clear-cutting: Papua New Guinea 165; Thailand 504, 519, 521, 524; United States 312, 313, 319, **320,** 321, **321, 326,** 327, 792
Clermont, Fla.: Orange harvest **211**
Cleveland National Forest, Calif.: Fire-fighting station 324
Cliff dwellers and dwellings: ***The Anasazi—Riddles in Ruins.*** By Thomas Y. Canby. Nov., 554-592; Betatakin Ruin, Ariz. **606,** 612; Canyon de Chelly region, Ariz. **72-73,** 562, 589; Mesa Verde National Park, Colo. 88-89, **558,** 562, 589
Cliff Palace, Mesa Verde National Park, Colo. 88-89, **558,** 589
Climate: ***Volcanic Cloud May Alter Earth's Climate.*** By Robert I. Tilling. Nov., 672-675
Clinton, Mount, N. H. 792
Clocks and watches: Digital watch, mechanics of 429, **444-445,** 445; Pocket watch, mechanics of **444,** 444-445
Coakley, Livingstone 377, 385, 386, 395
Coal fields: *America's Federal Lands; The United States.* Sept. supplement
Coal mining issue: National forests and grasslands 313, 325
Cobb, Jodi 553
Cocaine smuggling: Florida 185, 191
Cochiti Pueblo, N. Mex. 599; Clay caricatures 599, **599**
Coconut Grove, Fla. **187**
Coffee: Ivory Coast 99, 102, **120,** 122, introduction 108, production level 100, 101; Papua New Guinea 149, 152, 153, 155, 156, 161, 164, food crops replaced 164; Thailand 493, 506, beans **532**
Coffins: Egyptian "anthropoid" **742,** 746, **749,** 768, bases 753, 757, feet **768,** lids **738,** 740-741, **747,** 748, 752, 753, 757, **766,** masks **738, 747, 748,** 752, **764-765, 766**
Coins: Fulani jewelry **406;** Herculaneum, Italy 687, **687, 690,** 690-691
Coir: Dhow sewing 4, **4-5,** 6, 12, 13
Colombia: Drug shipping 185, 191
Colonia Juan Belaieff Island, Paraguay: Indians **259**
Color probe: Underwater archaeology 640, 644, 648
Colorado: Anasazi sites 563 *see also* Mesa Verde; Avalanche survivor 295; National forests 310, **336-337,** 339, 358; Oldest permanent structures found in West 1; *see also* Four Corners Country
Colton, Peter 164-165
Columbia (space shuttle orbiter): ***Heat Paints* Columbia*'s Portrait.*** By Cliff Tarpy. Nov., 650-653; Launch **180;** Reusability 180
Columbus, Christopher: Bahamas landfall 371, 373, 375, 378
Comanche Indians: Portrayed by Hopis 622
Computer applications: Atmospheric study 672, **672,** 673; *see also* Thermal imagery
Computer crimes 456
Computer industry 419, 785; ***California's Silicon Valley.*** By Moira Johnston. Oct., 459-477; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457
Computer Museum, Marlboro, Mass. **438**
Concepción, Paraguay 258
Conch Inn, Great Abaco (island), Bahamas 374; Marina 373-374
Conchs: Bahamas 378, 394, 395
Concord, N. H. 792
Conly, Robert Leslie **276**
Conrad, Anna **283, 285;** ***Avalanche! "I'm OK, I'm Alive!"*** By David Cupp. Sept., 282-289
Conservation: ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339; ***Roosevelt Country: T. R.'s Wilderness Legacy.*** By John L. Eliot. Sept., 340-363
Continental drift 93, 824; ***The Mediterranean—Sea of Man's Fate.*** By Rick Gore. Dec., 694-737
Continental shelf: Florida 183
Contrary New Hampshire. By Robert Booth. Dec., 770-799
Cooper, Martha, photographer: ***Unearthing the Oldest Known Maya.*** July, 126-140
Copeland, Mrs. W. C., Jr. 209-210
Copper: Cyprus (island), Mediterranean Sea 717-718; Jenne-jeno (site), Mali 402, 407, 410, 414; Papua New Guinea 161, 162, 170
Cordero, Helen: Clay sculpture by **599**
Cordova, Tony Joe **337**
Core-and-veneer masonry 575, 579
Corfu Island, Greece 730
Corkscrew Swamp Sanctuary, Fla. 174
Corn: Anasazi **577,** cultivation **574-575;** Hopi 613, 623, Mother Corn **624,** 626, **627;** *see also* Maize
Cornell University, Ithaca, N. Y.: Submicron-structure research 443
Cornice, snow: Avalanche danger **294**
Coronado, Francisco Vásquez de 592, 596
Corpus Christi Day pilgrimage: ***Peru's Pilgrimage to the Sky.*** By Robert Randall. July, 60-69
Corral, Wodiska y Ca., Tampa, Fla.: Cigars **213**
Corsica (island), France: Formation 704, 709, 710, diagram showing **710-711**
Cortez, Colo.: Ruins near 589
Cosmetic spoon, alabaster **748, 749,** 752
Costa Rica: NGS television special filmed in rain forest 824
Cotton: Hopi robes 619, **620-621;** Paraguay 242, 245, 259, 260, transport **266-267, 268-269;** Thread making 137
Cottonwoods: Nebraska **70**
Coulibaly, Seydou 108, 119, 122
The Country of Willa Cather. By William Howarth. July, 71-93
Courdurier, Bernard **285**
Cousteau, Jacques-Yves 273
Covered bridges: New Hampshire 793
Cow, with newborn calf **82-83**
Cowboy figurine **599**
Crafts *see* Pottery
Cranes, sandhill: In flight **86-87**
Crater Lake, Oreg. 354
Crater lakes: El Chichón (volcano), Mexico 660-661, **660-661, 674**
Crete (island), Greece: Geodynamics 705, 706, 709, 710; Minoans 704, 707; Volcanoes near 707 *see also* Thera
Crossette, George **276**
Crotched Mountain, N. H. 778
Crowell, John B., Jr. 316-317, **319**
Cruikshank, Dale P.: Volcano study 821
Cruises and voyages: ***In the Wake of Sindbad.*** By Tim Severin. July, 2-41
Crutches: Anasazi **559**
Cruz Altunár, Pedro 666, 669, 684
Cruz-Reyna, Servando de la 664, 667, 669
Crystal growing: Silicon 426, 434, 471
Cubans in Florida **184,** 192, 197;

Anti-Castro groups 184-185, **196;** Boat-lift refugees 185, 189, 210-211
Cuello site, Belize: ***Unearthing the Oldest Known Maya.*** By Norman Hammond. July, 126-140
Age 129, 130, 139, 140
Amphora 128
Beads: Blue **135,** 138; Jade **134,** 138
Burials 128, 129, **131, 132, 133,** 135, 137, 138, 139, 140; Grave offerings **136,** 138-139, **140**
Cistern, rubbish-filled 137
Daggers, chert 128, **130, 133,** 134
Diagram **132-133**
Discovery 128
Fire pits 137
Foods 137-138, **139;** Abrasion to teeth 139; Storage chamber **138-139;** *see also* Maize, *below*
Maize 133, 137, 139; Breeding 133, 139-140
Map locating 133
Platform, oldest **130,** 140
Population 133
Pottery 128, **136,** 138-139, **140;** Ocarina **136,** 139, **140;** Organic-resist **136**
Pyramids **126-127, 131, 132,** 134; Design 134
Sacrifices, human 126, 128, 130, 132, 135
Stamp, terra-cotta **135**
Temples 128, 130, 132, **132,** 135, 137, 138; Consecration 132-133, 138; Construction 128; Deconsecration 134, 138
Trade 133, 134, 138
Culebra Bird Reservation, Puerto Rico 347, 362
Cupertino, Calif. **474;** Apple Computer company 469-470; Computer classes, grade school 470; Vietnamese 470; Zoning law, residential 474
Cupid's Cay, Eleuthera (island), Bahamas 383
Cupp, David: ***Avalanche!*** Sept., 280-305; photographer: ***Our National Forests: Problems in Paradise.*** Sept., 306-339
Cyprus (island), Mediterranean Sea: Copper deposits 717-718; Forest destruction and regeneration 718; Geodynamics 712, 717; Gypsum **713,** diagram **712**

D

DC-3 (airplane): Insecticide spraying **216**
DC-6 (airplane): Marijuana smuggling 185
DDT: Threat to brown pelicans 350-351, 352
Da, Popovi: Pottery by **598**
Da, Tony **604;** Pottery by **597, 598**
Dade County, Fla.: Blacks 192; Cuban boat-lift refugees 185; Shooting range **197;** *see also* Miami; Miami Beach
Daggers, Maya ceremonial 128, **130, 133,** 134
Dairy farming: Computer applications 434-435
Dale, Bruce, photographer: ***The Bahamas: Boom Times and Buccaneering.*** Sept., 364-395
Dalley, Richard **27**
Dams *see* Itaipú Hydroelectric Development, Brazil-Paraguay
Dancers: Chinese **39;** Florida **202-203;** Hopi 615, **616-617,** 618-619, 622, 623, 628; Ivory Coast **106-107, 109, 113;** Papua New Guinea **143;** Paraguay **251;** Thai classical dancers **508, 514-515**
Dane Church, Weston County, Nebr. 76, **76**
Dans (people) **106-107,** 112, **113;** Masks **112;** Migration 108
Darley, Richard J. 276
Dating methods: Archaeomagnetism 563; Deir el-Balah (site), Gaza Strip 752, 760; Pottery sherds 402, 410, 413-414; Radiocarbon dating 1, 128-129, 402, 408, 410, 413, 563, 673; Tree-ring dating **327,** 332, 563, 565, 570, 588
David, Père Armand 479, **481**
Dawanshan (peak), People's Republic of China 38
Dayan, Moshe 741, 764
Dead Sea, Israel-Jordan: Conduit to Mediterranean Sea 730
Death Comes for the Archbishop (Cather) 75, 89, 91
de Barros Barreto, Nelson 254, 255
A Decade of Innovation, a Lifetime of Service (Melville Bell Grosvenor). By Bart McDowell. Aug., 270-278
Deer *see* Père David's deer
DeFelice, Tad 287, 288, 289
Defler, Al 323, 324
Deforestation: Bolivia 820; Mediterranean Sea area 718, 727; Thailand 519; United States **320,** 321, **321,** 322
Deir el-Balah (site), Gaza Strip: ***Lost Outpost of the Egyptian Empire.*** By Trude Dothan. Dec., 738-769
Artisans' village 743, 757, **766-767**
Bricks, mud 752, 753, 757, 762
Cemetery 739, 740, 741, 743, **747,** 762, 763, 764
Coffins, "anthropoid" **742,** 746, **749,** 768; Bases 753, 757; Feet **768;** Lids **738,** 740-741, **747,** 748, 752, 753, 757, **766;** Masks **738, 747, 748,** 752, **764-765, 766**
Depression 753 *see also* Reservoir, *below*
Excavations **744-745, 747, 756-757,** cutaway diagram **743**
Fortress 743, **758-759,** 760, 762, 763
Grave robbers 739, 740, 741, 746, 752, 753
Kiln 743, 753, 762, **767**
Multiple burials 748, **749,** 752, 757
Palace 743, **755,** 760
Potsherds 743, **745,** 746, 752, 753
Reservoir 743, **758-759,** 760, 762
Sand dunes 743, **744-745,** 746, **747,** 753, **756-757, 763**
Spinning methods (flax) **762**
de la Cruz-Reyna, Servando 664, 667, 669
Dell'Amico, Carlo 52
Delos (island), Greece 704
Deschutes National Forest, Oreg.: Fire-fighting **330-331**
Design automation: Computer-aided design (CAD) 433, 463; Electron-beam transfer **429,** 443
Dhow *see Sohar*
Digital Equipment Corporation **785**
Digital watches: Mechanics of **444-445;** Transistors, number of 429
Dionysus: Amazons, slaying of 705
Dipri festival: Ivory Coast **110-111,** 118-119
The Disaster of El Chichón. By Boris Weintraub. Nov., 654-684
Disco dancing: Port Moresby, Papua New Guinea **143**
Diseases 539; Mediterranean Sea area 715, 721, 727; *see also* Arthritis
Disney World *see* Walt Disney World
Divers and diving 793; Bahamas **365,** 378, 383, 386, **390-391;** In research submersible *Alvin* 821, 823; Mongol-fleet search 636, **638-639,** 644, 648
The Divide (region), Nebr. 74-75, 76; Immigrant settlers 75, 77
Dixville Notch, N. H.: Voters **779**
Dobbs, Peter **26,** 35
Doddo, Ana **184**
Dog racing: Protest against **780**
Doges' Palace, Venice, Italy **696-697**
Dogs, rescue: Avalanche victims 282, 284, 303, **304**
Doi Tung (mountain), Thailand 523
The doldrums, Indian Ocean 12, 13, 23, **24-25**
Dolls: Hopi **612, 616,** 628
Dolomites (mountains), Italy: Avalanche triggering, World War I 295
Dolores Archaeological Program, Colo. 565, 589
Don CeSar hotel, St. Petersburg Beach, Fla. **204-205**
Dos-Veinte settlement, Paraguay **264-265,** 265
Dothan, Trude: ***Lost Outpost of the Egyptian Empire.*** Dec., 739-769
Doubilet, David, photographer 222; ***Plight of the Bluefin Tuna.*** Aug., 220-239
Doubt, River of, Brazil 362
Douglas fir: Annual rings **327**
Dow, Wilmot **349**

Doyle, Robert E. **276**
Dragon motif: Mongol metalwork **647**
Drought: Florida (1981) 174, 215; New Mexico 571, 588, 589, 600
Drug abuse: Silicon Valley assembly-line labor 472
Drug commerce: Industrial theft related to 472, 473
Drugs, illegal: Bahamas 372-373, 375, 377; Florida 172, 175, 183, 185, 191, 192, arrests 185, **191,** war on 191, 192, 211; Southeast Asia 493, 494-495, 504, 506, 507, 523, 526, 527, 532
Dumyat, Egypt: Bridge **726**
Dundee, Angelo and Chris 195
Durham, N. H.: Forest Service laboratory 325
Dusky seaside sparrows: Endangered 200
Duveneck, Frank **472**
Dynamite: Avalanche control **298-299**

E

Eagle sacrifice: Hopi religion 626, **626, 627,** 628-629
Earrings, gold: Fulanis **406, 407;** Jenne-jeno (site), Mali **407,** 417
Earthquakes: Italy 713, 715, 717, 724, victim **716;** Mediterranean Sea area 704, 705, 721, Herculaneum 688; Mexico 664, 666, 679, 680; Peru 295; Prediction 824
Easter vacation: Fort Lauderdale, Fla. **202-203**
Eaton, Robert J. 258
Edwards Air Force Base, Calif.: *Columbia* landing: Thermograms **650-651, 652-653**
Egrets, snowy: Florida 174
Egypt: Canal, proposed 732; Nile Delta sedimentation 726, 727-729; Pollution of Mediterranean Sea 704, 727
Egypt, ancient: Excavations 821; ***Lost Outpost of the Egyptian Empire***. By Trude Dothan. Dec., 739-769; Snow trade 718
Eigenmann, Ruth and Vanni 303, 304
El-Baz, Farouk 728
Elbow Cay, Bahamas **380-381;** Founders 374
El Cariso Station (fire fighting), Cleveland National Forest, Calif. 324
El Chichón (volcano), Mexico: ***The Disaster of El Chichón***. By Boris Weintraub. Nov., 654-684; ***Volcanic Cloud May Alter Earth's Weather***. By Robert I. Tilling. Nov., 672-675
  Aerial views: Pre-eruption **675;** Post-eruption **674-675**
  Aid for victims 667
  Ash and gases **654-659,** 661, 663, **664-665,** 666, 669, 672, 673, 680; Computer profile **672;** Diagram **672;** Maps: Ash flows 663, ashfalls 663
  Ash flows 679; Lakes created by 679, 684; Map locating 663
  Atmospheric impact 673, 675; Diagram **672**
  Compared to Mount St. Helens 655, 661, 672, 673; Diagram **672**
  Crater 660-661, **674-675, 676-677**
  Death toll 658, 661, 666, 669, 670; Official body count 666, 670
  Economic effects of eruptions 678, 679
  Effects on surrounding land 678; Soil enrichment 679, 682
  Eruptions 661, 672, 673, 677; April 2-4, 1982 **656-657,** 662, 664, 666, 669, 680; March 28, 1982 658, 664, 666; Views from space **662, 663**
  Evacuation of area **658,** 666, 669; Forced 667
  Fireballs **656-657,** 680
  Folklore 661, 664
  Magmatic chamber 661
  Maps 663
  Monitoring 664, 667, 669, 684
  Respiratory problems caused by 670, 678
  Restricted zone 666; Map locating 663
  Steam clouds 661, 664, **666**
  Weather, possible effects of 655, 661, 672, 673, 675; Duration 673
Electric field: Demonstrated **543**
Electron-beam lithography: Chip-design transfer **429,** 443; Ultraminiaturization 429, 443
Electron micrograph: Ant with chip **431**
Electronic imaging system, developed by NGS 821, 823
Electronic switches: Josephson junctions 444; Molecular switches 443-444, 446; *see also* Transistors
Electronics industry 785; ***California's Silicon Valley***. By Moira Johnston. Oct., 459-477; ***The Chip: Electronic Mini-marvel***. By Allen A. Boraiko. Oct., 421-457
Elephants: India loggers 12; Ivory Coast 100, **122-123,** poaching 115, 117, 123; Sri Lanka *peraheras* 18, 20; Thailand: Logging **520-521,** "white" elephants, significance of 512
Eleuthera (island), Bahamas 378, 383-384
Eliot, John L.: ***Roosevelt Country: T. R.'s Wilderness Legacy***. Sept., 340-363
Elk 311, 350, 358, **360-361**
Elkhorn (Theodore Roosevelt's ranch), N. Dak. 344
Ellen, Dave **319**
Ellis, William S.: ***Florida—A Time for Reckoning***. Aug., 172-219
El Naranjo, Mexico: Aerial view: El Chichón eruption aftermath **658-659**
Emmy television award 275
Encarnación, Paraguay 250
Encephalitis threat: Marco Island, Fla. 217
Enchanted Mesa, N. Mex. 89
Endangered and threatened species 820; Blunt-nosed leopard lizard 334; Brown pelican 350-351, 352, 362; California condor 313, 339; Dusky seaside sparrows 200; Marine turtles 362; Puerto Rican parrot 313, 316, 339; Wood storks 174; *see also* Bluefin tuna; Père David's deer
Energy development: Gasohol research **317;** Wind farm 778; *see also* Hydroelectric projects
England: ***Père David's Deer Saved From Extinction***. By Larry Kohl. Oct., 478-485
ENIAC (computer) 421
Environmental concerns *see* Air pollution; Water pollution
Environmental Protection Agency 333
Epcot Center, Walt Disney World, Orlando, Fla. 179, 217; Geosphere **178-179**
Ephesus (ancient city), Asia Minor: Sedimentation 727
Erawan shrine, Bangkok, Thailand: Temple dancer **508**
Ercolano, Italy **689**
Erosion, beach: Florida 203
Eskimos: Yukon Delta, Alaska 359, 362
Esparza, Elizabeth **467**
Espoir (oil field), Ivory Coast 120
Estancia Adela, Paraguay **263**
Estancia Juan de Zalazar, Paraguay 258, **262-263**
Ethnology: ***Inside the Sacred Hopi Homeland***. By Jake Page. Nov., 607-629; ***The Ivory Coast—African Success Story***. By Michael and Aubine Kirtley. July, 94-125; ***Papua New Guinea: Journey Through Time***. By François Leydet. Aug., 150-171; ***Papua New Guinea: Nation in the Making***. By Robert J. Gordon. Aug., 143-149
Etna, Mount, Sicily, Italy 704, 712, **714-715;** Eruption (1981) 712-713, 714
Etosha Pan, Namibia: ***Family Life of Lions***. By Des and Jen Bartlett. Dec., 800-819
Eugene, Oreg.: Jobless lumber workers **322-323**
Europe: Continental drift 93, 700-701, 704, 705, 709, 710, diagram explaining **710-711;** *The Historic Mediterranean; The Mediterranean Seafloor*. Dec. supplement; ***The Mediterranean—Sea of Man's Fate***. By Rick Gore. Dec., 694-737; *see also* England; Italy
Everest, Mount, China-Nepal: American expedition 270
Everglades (region), Fla. 174; Cuban paramilitary group 184, **196;** Road **202,** 203; Smuggling **190,**

191; Wildlife 174
Everglades National Park, Fla.: Establishment 174
Everingham, John, photographer: ***Thailand's Working Royalty.*** Oct., 486-499
An Exciting Year of Discovery: President's Report to Members. By Gilbert M. Grosvenor. Dec., 820-824
The Exodus route theories 739, 740, 742, 763, 821
Exploring Our Living Planet (NGS book) 824; Ocean floor map **822-823**
Explosives: Avalanche control 287, **298-299,** 305
Exuma Cays, Bahamas **368-369** *see also* Great Exuma

F

FBI: Industrial-espionage trap 473
Factories, automated with robots 425, 450-451, 454, **454-455**
Fairchild, David 346
Fairchild Semiconductor 429, 468; Spin-off companies 468, diagram **471**
Faisel bin Ali Al Said, Sayyid 11, **38,** 40
Faison, Mrs. Tommie 209
Fajada Butte, Chaco Canyon, N. Mex. **580-581,** 585
Falkman, Susan 45, 48
Family Islands, Bahamas: ***The Bahamas: Boom Times and Buccaneering.*** By Peter Benchley. Sept., 364-395
Family Life of Lions. By Des and Jen Bartlett. Dec., 800-819
Farington, Donald 383
Farmington, N. Mex. 625
Favignana (island), Egadi Islands, Italy: Fishing methods **735**
Feathers: Hopi religion **609,** 612, 628-629, **628-629;** Pheasant **79;** Skirt **573**
Federal lands 567, 610, 625; *America's Federal Lands; The United States.* Sept. supplement; ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339; ***Roosevelt Country: T. R.'s Wilderness Legacy.*** By John L. Eliot. Sept., 340-363
Felsenthal, Sandy, photographer: ***Contrary New Hampshire.*** Dec., 770-799
Ferguson, Claude 321, 322, 335
Fertilizer, natural-gas 311
Festivals: Bonfire festival (Spain) **698-699;** Dipri (Ivory Coast) **110-111,** 112, 119; Loy Krathong (Thailand) 514; *see also* Religious ceremonies and processions
Fiat Topolino (1953) **43;** Marble copy **42-43,** 58
Filadelfia (Mennonite community), Paraguay 258-261; School **260**
Finding West Africa's Oldest City. By Susan and Roderick McIntosh. Sept., 396-418
Findley, Rowe: ***Our National Forests: Problems in Paradise.*** Sept., 306-339
Fire and Ash, Darkness at Noon. By Boris Weintraub. Nov., 660-684
Fire fighting: Forests 321, 322, 324, 329, **330-331**
Fish: Mediterranean Sea 726, 728, 735, **735;** Mosaic **734;** New Hampshire 783
Fish traps 224, 228, 233, 239
Fishes *see* Groupers; Jack; Mackerel; Sharks; Tuna
Fishing: *Sohar* crew 13, 22-23, **27**
Fishing, sport: Florida 175, **176**
Fishing industry: Bahamas 366, 386, 394, 395, problems 378, 383, 386, 388; Egypt 726, 728; Italy **735;** ***Plight of the Bluefin Tuna.*** By Michael J. A. Butler. Aug., 220-239; Pribilof Islands, Alaska 542, 543, 550, 552
Five Rivers, Oreg.: Herbicide spraying 333
Flagler, Henry 199
Flagstaff, Ariz.: Hopi sacred land near 612, 618, 625, 626
Flathead National Forest, Mont.: Clear-cutting 313
Fleming, Kevin, photographer: ***Florida—A Time for Reckoning.*** Aug., 172-219
Floods: Italy **696-697,** 721, 723, causes 696-697, 703, 722, 723; Thailand 512
Florida:
  Cuban Americans 378
  Drug smuggling 375
  Florida—A Time for Reckoning. By William S. Ellis. Aug., 172-219
  Agriculture 183, 195, 209, 217, 218; Citrus 183, **211,** 217, 218; Migrant workers **194**
  Alligators 174, 195, 200; Control agents 195, 200, 203
  Canals 174, 183
  Cigar-making industry 211, **213,** 217
  Construction **178-179,** 183, **186,** 192, 217
  Crime 172, 175, 185, 197
  Cubans **184,** 192, 197; Anti-Castro groups 184-185, **196;** Boat-lift refugees 185, 189, 210-211
  Drought (1981) 174, 215
  Drugs, illegal 172, 175, 183, 185, 191, 192; Arrests 185, **191;** War on 191, 192, 211
  Economy 183 *see also* Agriculture; Construction; *above;* Tourism, *below*
  Environmental damage 172, 174, 183
  Facts and figures 183
  Flag **182**
  High-technology manufacture 181, 217-218
  Maps 182-183
  Population 172, 183; Growth 172, 175, 181, 183, map 182
  Refugees 172, 189; Cuban boat-lift 185, 189, 210-211; Haitians **188-189,** 192
  Resorts 199, 209, 210-211
  Retirees 172, **173,** 174-175, 181, **187,** 195, 217, 219
  Sinkholes 174, **214-215**
  Tobacco: Auctions 212; Warehouse **212-213;** *see also* Cigar making, *above*
  Tourism 172, 174, 175, 181, 183, 195, 211, 215, 217, 219; Walt Disney World 179, 217
  Water policies 174, 183, 217
  Wildlife 174, 200, 210; Preservation 200; *see also* Alligators, *above*
  National forest 339
  Wildlife refuges 346, 350, 351, **352, 353**
Folk art: ***Pueblo Pottery: 2,000 Years of Artistry.*** By David L. Arnold. Nov., 593-605
Food-exporting nations 504
Forest fires: ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339
Forest products industry: Laboratory **316, 317,** 325; New Hampshire 774, **776-777,** 789, 792; Papua New Guinea 149, 165; *see also* Timber industry
Forestry 324; Clear-cutting 165, 312, 313, 319, **320,** 321, **321, 326,** 327, 792; New growth 165, **308-309, 317,** 777, 789; Old growth 312, 316-317, 319; Reforestation 120, 319, 321-322, 327; Selective cutting 319, 321, 324, 792; Sustained yield 316, 324
Forests 279; *America's Federal Lands; The United States.* Sept. supplement; Avalanche barriers **291,** 302; ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339; ***Roosevelt Country: T. R.'s Wilderness Legacy.*** By John L. Eliot. Sept., 340-363
Fort Jefferson National Monument, Fla. **201**
Fort Lauderdale, Fla. 195; Beach **203;** College student invasion **202-203,** 203
Fort Niobrara National Wildlife Refuge, Nebr. **360-361**
Fort Sill Military Reservation, Okla. 350
Fortress, ancient Egyptian: Deir el-Balah (site), Gaza Strip 743, **758-759,** 760, 763
Fos, France: Pollution reduced 727
Fossils: Samos (island), Greece **704,** 705, 706
Foster, Bruce 14, 20
Four Corners country (Arizona-Colorado-New Mexico-Utah): ***The Anasazi—Riddles in the Ruins.*** By Thomas Y. Canby. Nov., 554-592; ***Inside the Sacred***

Hopi Homeland. By Jake Page. Nov., 607-629; ***Pueblo Pottery: 2,000 Years of Artistry***. By David L. Arnold. Nov., 593-605; *The Southwest*, The Making of America series. Nov. supplement
Fourth of July: Pribilof Islands, Alaska **541,** 552
Fowell, Jody **605;** Pottery made by **598, 605**
Fox, arctic blue 547, **547**
France: Avalanche victims 290; Fishing industry 227; Food-export ranking (1982) 504; Geodynamics 704, 705; Pollution control 727; Riviera 727, 730, **730-731;** Weather 703, 704, 719, 722, 726; *see also* Corsica
Francisco León, Mexico: El Chichón eruption 667, 679, **680, 681,** 684
Franconia Notch, N. H. **775, 798**
Franklin, Benjamin: Light reduction discovery 673
Frauenkirch, Switzerland: Avalanche barrier **303**
Freeport, Grand Bahama (island), Bahamas 370, 382
The French: Ivory Coast 97, 100, 101, 108, 114, 118
Friends of Animals, Inc. 538
Frijoles Canyon, N. Mex.: Cave **578**
Frog, gastric-brooding 824
Frost, Kent **573**
Fruit growing: Florida 183, **211,** 217, 218; Silicon Valley, Calif. 472, **473,** former acreage 459, 472
Fujitsu Limited, Aizuwakamatsu, Japan **432-433,** 440
Fukuoka, Japan: Museum near 644, **646-647**
Fulanis: Headgear 413; Jewelry **406, 407**
Funches, Ernest 278
Funerary objects: Pueblo pottery **600-601,** 601; *see also* Coffins
Funerary urns: Bobo people 411; Deir el-Balah (site), Gaza Strip 748, **748;** Jenne-jeno (site), Mali **396-397,** 407, 411, cutaway diagram **406**
Fur seals 419; ***New Day for Alaska's Pribilof Islanders***. By Susan Hackley Johnson. Oct., 536-552

G

Gainesville, Fla. 200
Galanin, Anfesia 543, 548
Gallegos, Robert **336**
Gambling: Bahamas 375, 377, 379, 395
Garrett, Kenneth, photographer: ***The Disaster of El Chichón***. Nov., 654-684
Garrett, Wilbur E. 270, **276,** 278; ***The Making of America—17 New Maps Tie the Nation to Its Past***. Nov., 630-633
Garver, John 631
Gasohol research **317**
Gauchos: Paraguay **262-263**
Gauru, Papua New Guinea 150
Gay, Papa 390-391
Gaza Sands Yield Lost Outpost of the Egyptian Empire. By Trude Dothan. Dec., 739-769
gelati (ice cream) 717, 718, 732; Sculpture **733**
Gems: Southeast Asia 504, 519, 520; Sri Lanka 18, 20; Thailand 512, 520, **520**
Genoa, Gulf of 703, 719
Genoa low (cyclone) 703, 719, 722; Satellite image **702-703**
Geodynamics: ***The Mediterranean—Sea of Man's Fate***. By Rick Gore. Dec., 694-737
Geography education 685
Georgia, Lowell, photographer: ***Unearthing the Oldest Known Maya***. July, 126-140
Geosphere: Epcot Center, Walt Disney World, Orlando, Fla. **178-179**
Geothermal power 313, 664, 709
Gerhardt, Juliette Cartwright 128, **131**
Giacalone, Matt 227
Giant panda 485, 824
Giant sequoias 345, 354, 357-358
Gibraltar, Rock of 700-701, **700-701,** 726; British sovereignty 736; Geodynamics 701, 704, 709; Human history 701, 736, 737; Mythology 704, 736
Gibraltar, Strait of: Atlantic Ocean flow **702,** 703, 724-725, 726, blocked 705, 712; Bridge, proposed 701, 732, 736; Tunnel, proposed 732, 736
Gifford Pinchot National Forest, Wash.: Volcanic area 325
Gilman, Colo. 337
Giraffes: Lion predation 802, **815, 818;** Prehistoric 705
Glader Park (diner), Tamiami Trail, Fla.: Signs **202**
Glaze decoration: Pueblo pottery **595-596**
Glenton, Long Island, Bahamas: Anglican church **392-393**
Globes, NGS 275; Axis-free 270
Glomar Challenger (research vessel) 704-705
Gloy, Don **435**
Goblet, alabaster **748, 749,** 752
Gogol Valley, Papua New Guinea: Timber company 165
Gold Creek, Alaska: Avalanche **292-293**
Golden eagles: Anasazi wing-bone flute 570; Hopi sacrifice ceremony 626, **626, 627,** 628-629
Golden Triangle, Southeast Asia: Narcotics trade 493, 494-495, 504, 506, 507, 523, 526, 527, 532
Gomon, Ivory Coast: Festival **110-111,** 118-119
Gonzalez Delvalle, Alcibiades **254**
Good, Walter 303
Goodall, Jane **274**
Gordon, Robert J. 147; ***Nation in the Making: Papua New Guinea***. Aug., 143-149
Gore, Rick: ***The Mediterranean—Sea of Man's Fate***. Dec., 694-737
Gore, Va. 74
Goroka, Papua New Guinea 152, 161; Prison **156**
Gouros (people) 108
Gove, Robert 45, 48
Governor's Harbour, Eleuthera (island), Bahamas 383, 384
Graham, Bob 217, 218
Grand Bahama (island), Bahamas 370, 377, 382, **382-383,** 385
Grand Canyon, Ariz. 346, 358, 563; Hopi pilgrimage **608-609,** 612; Pit houses 563
Grand Lucayan Waterway, Grand Bahama (island), Bahamas: Development along **382-383**
Grand Manan Island, Canada 91, 93; Fault system 93
Grand Mesa, Colo. 339
Grand Palace, Bangkok, Thailand **490**
Grant, Leonard J. **276**
Grasses, prairie: Nebraska 75
Grave marker: Deir el-Balah (site), Gaza Strip 748, **748**
Grave robbers: Deir el-Balah (site), Gaza Strip 739, 740, 741, 746, 752, 753
Graves: Cuello site, Belize 128, 129, **131, 132, 133,** 135, 137, 138, 139, 140, offerings **136,** 138-139, **140;** *see also* Coffins; Funerary urns
Gray, Ralph **276**
Great Abaco (island), Bahamas 373-374, 375, **380-381, 384-385**
Great Bahama Bank, Bahamas **368-369**
Great Bear Wilderness, Mont. 311
Great Exuma (island), Bahamas 385, 386
Great Inagua (island), Bahamas 371, 375; Schoolchildren **387**
Greece **704,** 705, **706-707,** 707, **708-709,** 710, 730; Bluefin tuna 223; Merchant fleet 709; Mythology 704, 705, 706, 736
Greenhill, Richard 20, 23, 24-25, photographer: ***In the Wake of Sindbad***. July, 2-41
Grehan, Farrell, photographer: ***The Country of Willa Cather***. July, 71-93; ***Roosevelt Country: T. R.'s Wilderness Legacy***. Sept., 340-363
Grey, Zane: Bluefin tuna record catch 223
Grizzly bears: Montana 311, 313
Grosvenor, Alexander 278
Grosvenor, Anne Revis **275,** 278; Photo by **276**
Grosvenor, Edwin Stuart 276, 278; Photos by **275, 277**
Grosvenor, Elsie May Bell **272**
Grosvenor, Gilbert Hovey 270, 272, **276;** Photo by **273**
Grosvenor, Gilbert M. **276,** 278; Herculaneum visit **820,** 820-821;

Photo by **274-275**; ***President's Report to Members: An Exciting Year of Discovery.*** Dec., 820-824
Grosvenor, Helen 278
Grosvenor, Melville Bell: ***A Decade of Innovation, a Lifetime of Service.*** By Bart McDowell. Aug., 270-278
Angkor Wat visit **271,** 275
Atlas editions 270, 275
Birth 271
Childhood **273;** Infancy **272**
Children *see* Grosvenor: Alexander, Edwin Stuart, Gilbert M., Helen, Sara
Colleagues' remembrances 270, 276, 278
Conservation causes 278
Death 271, 278
Father *see* Grosvenor, Gilbert Hovey
Globe, axis-free 270
Grandfather *see* Bell, Alexander Graham
Great-grandfather *see* Bell, Alexander Melville
Helicopter crash: Australia 278
Honorary degrees 278
International recognition 278
Maps, interest in 270, 276
Midshipman 270, 272, **273**
Mother *see* Grosvenor, Elsie May Bell
NGM: Editorship (1957-1967) 270, 273; Staff member 272-273
NGS: Presidency (1957-1967) 270, 273, 275
Nickname ("Skipper") 270
Photography 270, 273, 276
Retirement **276,** 278
Sailing 270, 275, **277,** 278; Cap **278**
Tonga coronation guest **275,** 278
Travels 270, **271,** 274-275, **275,** 278
U. S. Presidents and **274,** 278
Wife *see* Grosvenor, Anne Revis
Writing 270, 273, 276, 278
Grosvenor, Sara 278
Groupers: Bahamas 378, 383, 394
Guadagnucci, Gigi **52,** 58
Guairá Falls, Paraguay-Brazil 244, **246**
Guangzhou (Canton), People's Republic of China 13, 29, 30, **38-41**
Guaraní Indians: Paraguay 243, 244, 245, 250
Gubler, Hans 302-303
Guéré people *see* Wès
Guerrillas: Thailand 504, 527; Communist 493, 495, 504, 528, 529-530, 531; Muslim 495, 528, 529
Gunrunners: Thailand 504, 519
Gutiérrez, Rocky **312**
Gypsum crystals: Cyprus 712, **713**

October pp. 419-552

H

Habitat destruction: Papua New Guinea 165; United States 172, 174, 183, 200, 311, 312, 313, 314, 317, 321, 339, 626
Hahn, David 287, 289
Haitian refugees: Bahamas 374-375, 384; Florida **188-189,** 192
Hakata Bay, Japan: Mongol invasions 636, **642-643, 645, 649;** Museum 644, 646
Hammond, Norman: ***Unearthing the Oldest Known Maya.*** July, 126-140
Handcar, railroad: Willa Cather riding **84**
Hanna, Mark 344
Harbour Island, Bahamas 375, 378, 383, **388-389**
Harris Corporation: Melbourne, Fla. 181, 218
Harrison, Benjamin: Proclaimed first forest reserves 310, 319
Harrison, Robert 778, 779
Hartsfield, Susie 201, 209
Hashish: Sumatra, Indonesia 23
Hassan II, King (Morocco) 732, 736
Hat Yai, Thailand 528
Hawaii: Wildlife refuge 346, 362
Hawaii Volcanoes National Park: Study of volcanic gases 821
Hayes, Alden 585, 588
Hearing aid, microelectronic **423**
Heat Paints* Columbia's *Portrait. By Cliff Tarpy. Nov., 650-653
"heli-torch" **326**
Henderson, Herbert **276**
Henraux (marble company), Querceta, Italy: Perón statues 55, **58;** Quarries 55; Studio 48, 58
Herbal medicine: Ivory Coast 111, **119**
Herbicide spraying: Danger from 333
Herculaneum, Italy 713, 721, **820,** 820-821; ***A Buried Roman Town Gives Up Its Dead.*** By Joseph Judge. Dec., 687-693
Hewlett, Bill **469**
Hewlett-Packard 425, 429, 432, 441, 468, 471, 476; Founders **469**
Hidden Villa Ranch, Calif. 472
High Tech, High Risk, and High Life in Silicon Valley. By Moira Johnston. Oct., 459-477
Hillsboro Beach, Fla. 192
Hillsborough Bay, Fla. **206**
Himalayas (mountains), Asia: Plate tectonics 824
Hinduism: Thailand 515; Classical dance **508, 514-515;** Shrine **508**
The Historic Mediterranean; The Mediterranean Seafloor. Dec. supplement
Hitachi 473
Hmong people: Thailand 506, 523, 526, 527, **532**
Hoefler, Don **461**
Hoff, Ted **462**

November pp. 553-684

Hohokam Indians 566, 594; Pottery **594**
Hollis, Nick 20, **34,** 38
Hologram: Video-game images **441**
Home dance: Hopi 619, 628
Homolovi, Ariz. 589
Homolovi II, Ariz. **560-561**
Honda: Electronic map **452**
Hooks, Ross 195, 200
Hoosier National Forest, Ind. 334-335
Hope Town, Elbow Cay, Bahamas **380-381**
Hopi Indians: ***Inside the Sacred Hopi Homeland.*** By Jake Page. Nov., 607-629; ***Pueblo Pottery: 2,000 Years of Artistry.*** By David L. Arnold. Nov., 593-605
Ancestors 610, 612, 629 *see also* Anasazi
Boundary shrines 607, **608-609,** 612, 626, 629, maps locating 610-611
Ceremonial cycle 613, 618-619, 622, 628, 629
Dances 613, 615, 616, **616-617,** 618-619, 622, 623, 628
Eagle sacrifice 626, **626, 627,** 628-629
Elders 607, **608,** 613, 622, 626
Government *see* Hopi Tribal Council
Kachinas 612, 613, 618, 619, 628, 629; Doll **612**
Kivas 613, **616-617,** 618, **622**
Lands: Dispute with Navajos 610-611, 624-626; Maps 610-611; *see also* Boundary shrines, *above*
Language 623
Marriage practices 613, **620-621**
Mother Corn **624,** 626, **627**
Naming ceremonies 619, **624,** 626, **627,** 628
Pottery 595, **597, 598, 602,** 603, **603**
Privacy, sense of 607, 612, 618, 622
Rain ceremonies 616, 618, 619, 622
Resettlement 611, 625
Robes, ceremonial 619, **620-621**
Sun deity 619, 624, 628
Traditions, threatened 607, 612, 618, 623, 626
Hopi Tribal Council 618, 623, 624, 625, 626
Horses: Florida **208-209,** 210; Wild **314-315**
Hot Shots (fire fighters) **330-331**
Hotevilla, Ariz. 626
Houphouët-Boigny, Félix 101, 102, 108, 114, 119, 122
House, Dave and Nancy **475**
Houseboats: Bozo people **416-417**
Hovenweep National Monument, Colo.-Utah 562
Howarth, William: ***The Country of Willa Cather.*** July, 71-93
Howitzers, 105-mm modified: Avalanche triggering 297
Huaisheng Mosque, Guangzhou,

December pp. 685-824

People's Republic of China **40**
Huang Zhen **38**
Hulse, Geoffrey **325**
Human sacrifice: Aztec 600; Baoulés 108; Maya 126, 128, 130, 132, 135
Hunting: Ivory Coast 123; Papua New Guinea **164, 167;** Pribilof Islands, Alaska **540,** 550, 552; Theodore Roosevelt 340, 343, 344, 362
Hydroelectric projects: Mediterranean Sea 730, 732; Papua New Guinea 155, **160-161;** *see also* Itaipú Hydroelectric Development, Brazil-Paraguay

I

IBM *see* International Business Machines Corporation
Iatmul tribe: Papua New Guinea: Artwork **147**
Iberian plate (earth's crust) 705, 709; Diagram **710-711**
Ibrahim *(Sohar* cook) 15
Ice cream, Italian 717, 718; Sculpture **733**
Ice-skating: Ivory Coast **115,** 124; New Hampshire **796-797**
Idaho: National forests **308-309,** 313, 323, 332-333, 358
Illumination (art) **11, 21, 29**
"I'm OK, I'm Alive!" By David Cupp. Sept., 282-289
Imaging system, low-light 821, 823
In the Wake of Sindbad. By Tim Severin. July, 2-41
India: Forest resources 4, 5, 11-12; Hindu epic 515; Lions 802; *see also* Malabar Coast
Indian lands: *America's Federal Lands; The United States.* Sept. supplement
Indian Ocean voyage: ***In the Wake of Sindbad.*** By Tim Severin. July, 2-41
Indiana: National forest 334-335
Indians: *Sohar* construction: Carpenters 12-13, rope workers 4, 12, 13, sailmakers **16-17,** 18
Indians of Central America: ***Unearthing the Oldest Known Maya.*** By Norman Hammond. July, 126-140
Indians of North America 630, 631, 633; Mexico 664, 666-667, 676, 678, **678, 679;** *The Southwest,* The Making of America series. Nov. supplement; *see also* Anasazi; Hopi Indians; Navajos; Pueblo Indians
Indians of South America: ***Paraguay, Paradox of South America.*** By Gordon Young. Aug., 240-267; ***Peru's Pilgrimage to the Sky.*** By Robert Randall. July, 60-69
Indonesia: Papua New Guinea, threat to 147, 155; Volcanic eruption 707
Industrial theft and espionage: Electronics industry 448, 459, 472-473
Infrared beams: Avalanche rescue study 304; Thermal images **650-651, 653, 662-663, 702**
Insecticide spraying: Marco Island, Fla. **216**
Inside the Sacred Hopi Homeland. By Jake Page. Nov., 607-629
Integrated circuits: ***California's Silicon Valley.*** By Moira Johnston. Oct., 459-477; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457
Intel Corporation 459, **462,** 463, 468, 471, 476; Co-founders **462,** 463; Manager **475;** Microprocessor 431, 434, 463, 466
International Business Machines Corporation 444, 468, 469, 473, 476; Chip-design transfer **429,** 443; Research center **426-427, 429**
International Red Cross 518
Ireland: Electronics industry 469, 476
Iron: Jenne-jeno (site), Mali 407, 410, 413, 414; Mongol stirrups **647**
Iron Age sites *see* Jenne-jeno, Mali
Irrigation: U. S. Reclamation Service 340, 346, 351; *see also* Anasazi, *outlined*
Islam: Legends 18, 20; Mali 401, 411, 414, 418, mosque **399,** 414; Mediterranean region 701, 730, 736; Republic of China: Mosque **40;** Thailand 494, 495, 507, 508, 528, 529, 534
Isles of Shoals, N. H. 783
Israel: Environmental concerns 726, 727, 821; ***Lost Outpost of the Egyptian Empire.*** By Trude Dothan. Dec., 739-769; Med-Dead conduit 730
Israel Museum, Jerusalem 740, 764
Israelites *see* The Exodus
Istanbul, Turkey 718, 727, 736, **736-737**
Itaipú Hydroelectric Development, Brazil-Paraguay: ***Paraguay, Paradox of South America.*** By Gordon Young. Aug., 240-269
  Construction 244, **247-249;** First phase 246-247; Workers employed **240,** 247, 250
  Costs and financing 247, 250
  Impact on wildlife 246
  Map and diagram 246
  Power potential 244, 246
  Reservoir 244; Area flooded 246
  Scheduled completion 244, 247
Italy: Avalanche 295; Beach resort **728-729;** Fishing industry 227, 228, **735;** Food **732, 733;** Geodynamics **694-697, 702-703,** 704, 709, **710-711, 716-719,** 722-723; *see also* Carrara; Herculaneum; Naples; Naples, Bay of; Sicily
Ivory Coast: ***The Ivory Coast—African Success Story.*** By Michael and Aubine Kirtley. July, 94-125
Abidjis (people) **110-111,** 118-119
Agriculture 97, **98-99,** 100, 101, 114, 120, 122; Crops 98-99, 100, 101, 102, 108, 120, 122
Animism 100, 101, 109; Masks 112, **112,** 123-124; Rituals **109, 110-111,** 112, 118-119, 122, 123, 124
Baoulés (people) 108, 114, 122-123, 124
Conservation programs 114-115, 117-118, 120
Dans (people) **106-107,** 108, **113**
Economy 97, 100, 101, 102, 120, 124; Growth 100; *see also* Agriculture, *above*
Ethnic groups 108, 119; Map locating 101; Number of 95, 100, 101, 108; *see also* Abidjis; Baoulés; Dans, *above;* Sénoufos; Wès, *below*
Facts and figures 101
Flag **101**
Foreign relations 97, 102, 103, 104, 108, 114
Forest 101; *see also* Conservation programs *above;* Timber industry, *below*
French influence 100, 101, **102, 103,** 108, 118
Government 95, 101, 102, 103, 108, 119, 120, 122; Corruption 117; *see also* Conservation programs; Foreign relations, *above*
History 101, 108; Independence 97, 100, 101, 108
Immigrants 100, 101, 114, **116-117**
Map 101
Medicine and health 110-111, **118-119**
Modernism vs. traditionalism 95, 100, 118, 124
National parks 114-115, 117, **122-123**
Oil, offshore 100, **120**
Ports 96, 100, 108, **121**
President *see* Houphouët-Boigny, Félix
Religions: Ancestor worship 104, 122, 123; Christianity 100, 101, 119; *see also* Animism, *above*
Sénoufos (people) 104-105, 108; Village **98-99**
Standard of living 98-99, 100, 101, 108, 115, 122, 124
Timber industry 101, 114, 117-118, 120, **121**
Wès (people) 100, 108; Masks **112,** 123-124; Panther-man ritual 100, **109**
Wildlife 114, 115, 117, **122-123,** poaching of 114, 115, 117, 123
Ivory poaching: Ivory Coast 115, 117, 123
Ixtacomitán, Mexico 667, 669, 678
Izaak Walton League 335

J

Jack (fish) **176,** 394
Jackson, N. H. 793
Jacksonville, Fla. 210, 211
Jacques, Claire 785, **785**
Jade: Burma 504, 523; Cuello site, Belize **134-135,** 138
Jaffrey, N. H.: Willa Cather's grave 93
Jamaicans: Florida **194**
James River Corporation pulp and paper mills, Berlin, N. H. **776-777,** 789, 792
Janel Fisheries (tuna ranch), Nova Scotia, Canada: Feeding **221, 225,** 235; Holding pens **220-221, 224-225,** 233, 235; Japan, shipment to 220, 225, 226, **226,** 235; Research facilities 235
Japan: Avalanche victims 290; Electronics industry 473, 476, ***The Chip: Electronic Mini-marvel.*** By Allen Boraiko. Oct., 421-457; ***The Lost Fleet of Kublai Khan.*** By Torao Mozai. Nov., 634-649; National industrial policy 476; ***Plight of the Bluefin Tuna.*** By Michael J. A. Butler. Aug., 220-239; Sealing treaty 538, 539, 544
Japan-United States trade war: Electronics industry 433, 440-441, 459, 463, 473, 476
Japanese: Papua New Guinea 165, forest products company 165, road building 165, war veterans **165;** Paraguay: Immigrants **260;** Thailand: Tourists 527-528; United States: Industrial spies 473
Jeddito Indians: Pottery **595**
Jenne, Mali: ***Finding West Africa's Oldest City.*** By Susan and Roderick McIntosh. Sept., 396-418
Jenne-jeno (site), Mali: ***Finding West Africa's Oldest City.*** By Susan and Roderick McIntosh. Sept., 396-418
Abandoned 398, 401, 402, 407, 418; Theories 401, 418
Aerial photos 398, **401**
Age 398, 401, 402, 407, 413, 414, 417
Ancestor worship 398, 411; Statuettes **398,** 411
Art thieves **418**
Artifacts 398, 400, 402, 407, 410, **411,** 413, 414; Gold earring **407,** 417; Time line **407;** *see also* Pottery; Statuettes, *below*
City wall 402, 414; Cutaway diagram **406;** Excavation 416-417; Painting **404-405;** Ruins **403,** 414
Climate 408, 413, 417
Commerce 397, 401, 404-405, 407, 414, 417, 418
Cutaway diagram **406**
Diet 402, 410
Discovery 398, 402
Excavations: 1977 400, 402; 1981 400, **402-403,** 408, **412-413,** 416-417, pits 410-411, 416-417
Family life 411, 412, 413
Funerary urns **396-397,** 407, 411; Cutaway diagram **406**
Garbage pits 407, 411; Cutaway diagram **406**
Gold 402, 405, **407,** 416-417
Hearths, cooking 402, 411, **412-413**
Houses 407, 410; Cutaway diagram **406;** Foundations 398, 400, 402, **402-403,** 407, 410-411, **412-413;** Painting **404-405**
Jewelry 398, 407, 410; Gold earring **407,** 417
Maps locating 400
Metal 398, 402, 407, 410, 413, 414 *see also* Gold, *above*
Name meaning 398
Painting **404-405**
Population 398, 401, 414
Pottery 404, 407, **408,** 410, 414, 417; Dating by 402, 410, 413-414; Decoration 407, **408,** 413, 417; Potsherds 398, **399,** 400, 402, 410, 413-414
Radiocarbon dating 402, 408, 410, 413
Settlement of 401, 407, 417, 418
Statuettes **398,** 402, 407, 411, **415, 418**
Time line: Artifacts **407**
Toys, clay 407, **411,** 413
Jerba (island), Tunisia 727
Jesuit missions: Paraguay **244,** 250
Jesus Christ: In art **54, 64, 68;** Miraculous appearance 60, 67
Jewelry: Ancient Egyptian gold and carnelian **750-751,** 752; Ancient Roman gold rings **686,** 691, 820; Gold earrings, Fulani **406, 407;** Jade beads, Maya **134-135,** 138; Jenne-jeno (site), Mali 398, 407, 410, gold earring **407,** 417
Jiddah, Saudi Arabia: Marble sculpture 44, **45**
Jiménez Juárez, Vasilio 667, 669, 678
Jobs, Steven 443, **463,** 468-469, 470, 476
John F. Kennedy Space Center, Fla. 181; Space shuttle launch **180;** Visitors Center **180**
Johnson, Lanny, photographer: ***Avalanche! "I'm OK, I'm Alive!"*** Sept., 282-289
Johnson, Lyndon 278
Johnson, Mary **388**
Johnson, Susan Hackley 538; ***New Day for Alaska's Pribilof Islanders.*** Oct., 536-552
Johnston, Moira 463; ***California's Silicon Valley.*** Oct., 459-477
Jones, Dewitt, photographer: ***The Anasazi—Riddles in the Ruins.*** Nov., 554-592
Jonkel, Charles 313
Jordan: Med-Dead conduit protests 730
Joseph, Saint: Lava statue 713, **714**
Josephson junctions (electronic switches) 444
Joshongva, Alfred 626, **627,** 628
Journey Through Time: Papua New Guinea. By François Leydet. Aug., 150-171
Juan Carlos, King (Spain) 732
Juárez, Mexico 667
Judge, Joseph: ***A Buried Roman Town Gives Up Its Dead*** (Herculaneum). Dec., 687-693
Judge, W. James 563, 565, 574-575, 578, 585, 586
Juneau, Alaska: Avalanche danger **292-293,** 305
Junks, Chinese **36-37,** 38

K

Kabylia (mountains), Algeria: Formation 709
Kachinas 592, 613, 618-619, 628; Dances 613, 619, 622; Doll **612**
kamal (navigational instrument) 14, **22**
Kamikaze legend 635, 636, 637, 648
Kampuchea 506, 507, 519, 520, 522, 530; Communism 500, 507; Temples **271,** 275; Vietnamese occupation, resistance to 507, 522
Kampuchean refugees: Thailand 506, 519, 522, **530-531**
Kanzeon Bosatsu: Statue of **646**
Kapali, Haraula **151**
Karens (people) 504, 506
Kasena, Papua New Guinea 152-154, 161
Katmai, Mount, Alaska: Eruption (1912) 662, 673, 675
Kayenta Anasazi 563, 566, 589; Pottery **595**
Keams Canyon, Ariz. 613, 625
Kennedy, Jacqueline Bouvier **274**
Kennedy, John F. **274**
Kessler, Tom **434**
Key Biscayne, Fla.: Boat racks **193;** Mansion **176-177,** 192-193
Key West, Fla. **198-199,** 210, 211
Khao-I-Dang (refugee camp), Thailand 519
Khmer: Refugees 519; Resistance groups 507, 522
Khon Kaen, Thailand: Oil exploration 529
Kids and Kubs softball game: St. Petersburg, Fla. **173**
Kilby, Jack 429, 471
Killer whales: Bluefin tuna predation 223, **232**
Kiln, ancient: Deir el-Balah (site), Gaza Strip 743, 753, 762, **767**
The King and I (musical) 491
Kingery, Bernie 282, 287, 288, 289, **288, 289**
Kinki University, Japan: Bluefin tuna aquaculture **236-237,** 239
Kirtland Air Force Base, N. Mex.: EMP research **447**

Kirtley, Michael and Aubine 402; ***The Ivory Coast—African Success Story.*** July, 94-125; photographers: ***Finding West Africa's Oldest City.*** Sept., 396-418
Kissimmee River, Fla. 215; Straightened 174
Kittiwake, red-legged **547**
Kivas: Anasazi 565, 570, **574,** 578, 579, 582, **584, 586-587,** 589, 592, murals **554,** 592; Hopi 613, **616-617,** 618, **622**
Klamath Lake Reservation, Calif.: Waterfowl refuge 351, 354
Knopf, Alfred: Quoted 74
Knowles, Braggy 386, 388
Koh Panyi, Thailand: Mosque **529**
Kohl, Larry: ***Père David's Deer Saved From Extinction.*** Oct., 478-485
Komoé National Park, Ivory Coast **122-123**
Kontarinu, Katherine, and grandson **163**
Korea: Kublai Khan's fleet 636, 637, 644
Korean tourists: New Hampshire **775**
Korhogo, Ivory Coast 104
Kouakrah, Michel 118, 119
Kouamé Albert 122-123
Kouassi, N'Guessan 100, 102
Koulangos (people) 108
Krakatoa (volcano), Indonesia: Eruption (1883) 707
Krou (people) 108 *see also* Wès
Krukoff, Agafon 539, 542
Krung Thep, Thailand 491
Kuaua (ruins), N. Mex. 592
Kublai Khan **640; *The Lost Fleet of Kublai Khan.*** By Torao Mozai. Nov., 634-649
Kubota, Hirofumi **260**
Küçük Menderes River region, Turkey: Deforestation 727
Kurtzig, Sandy **463,** 466
Kushimoto and Shirahama Laboratories, Honshu, Japan: Bluefin tuna pens **236-237,** 239
Kuster, Al **173**
Kwai, River, Thailand: Bridge **519;** Dam 531
Kyoto, Japan: Banquet of bluefin tuna **238-239**
Kyushu (island), Japan: Chip companies 441; Mongol invasions 636, 637, **642-643, 649**

L

LaChapelle, Edward 304, 305
Lae, Papua New Guinea 155, 156; Catering school **159**
Lagoon peoples: Ivory Coast 108, 119
Laguna Pueblo, N. Mex. 89
Lakshadweep Territory, India 12, 13, 15
Lamy, Jean Baptiste 89, 91; Statue 89, **91**
Land in the Middle: Thailand. By Bart McDowell. Oct., 500-535
Land use: Arizona 625-626; California 459, 464, 471, 472, 474; Florida 182-183, 218; ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339; Papua New Guinea 164
Landsat photos: Plate tectonics study 824
Lang, Galen 164
Laos 532; Communism 500, 507, 522, 530; Electricity export 506, 530-531; Narcotics smuggling 493, 504, 506, 523
La Plata Mountains, Colo. 579
Lasers: Avalanche rescue study 304; Cloud study 673; Videogame **441**
Lasso making **263**
Lateen-rigged ship *see Sohar*
Laundering in river: Ivory Coast **116-117**
Lauterbrunnen Valley, Switzerland: Steel snow bridges **300-301**
Lava 673, 712-713, **714;** Sculpture 713, **714**
LaViolette, Adria 410-411
Lawler, Robert W. 448, 450
Leakey, Louis S. B. **275;** NGS grants 273
Leather-and-wood boat: Ireland-Newfoundland voyage 5, 6
Lebanese immigrants: Ivory Coast 101, 114
Leopold, Aldo 311
Lewis, Emma: Pottery by **598**
Lewis, Lucy M. **604;** Pottery by **597**
Lewis, Sinclair: Nobel Prize in Literature (1930) 74
Lewis and Clark National Forest, Mont.: Natural gas well 311
Leydet, François 147; ***Journey Through Time: Papua New Guinea.*** Aug., 150-171
Liberty City, Miami, Fla. 192
Libya: Geodynamics 706, 709
Lightning: Volcanic eruption **656,** 669
Lincoln, Nebr. 85; 1872 **84-85**
Lincoln National Forest, N. Mex.: Smokey Bear 319, 332
Lindsay, Bertha **794**
Lino, Juana: Pottery by **598**
Lions: ***Family Life of Lions.*** By Des and Jen Bartlett. Dec., 800-819
  Cubs 802, 803, **809, 810,** 811, **816,** 817, cover
  Extinction, areas of 802
  Fighting **800-801**
  Food consumption 812, **814**
  Gestation 808
  Hunting 802, 812, 815
  Mating 808
  Prey 802, **804-807, 813, 814, 815, 818-819,** 819
  Prides 802, 803, **815, 816-817**
  Rest and sleep 802, **804-805, 816-817**
  Social behavior 802, **802-803, 816-817**
  Starvation 803, 819
  Water consumption 815
Lipari Islands, Italy: Obsidian trade 717; Volcanoes **694-695,** 709, 712, 717, **718-719**
Liquid crystals: Digital watch display **445**
Literature: ***The Country of Willa Cather.*** By William Howarth. July, 71-93
Lithography, electron-beam **429,** 443
Little Colorado River, Ariz. 568
Little Cottonwood Canyon, Utah: Avalanche control 305
Little Havana district, Miami, Fla. **184**
Littlehales, Bates, photographer: ***Père David's Deer Saved From Extinction.*** Oct., 478-485
Liu Tianfu **38**
Live Oak, Fla.: Tobacco warehouse **212-213,** auctions 212
Lleno, Jocelyn **476**
Lodge, Henry Cabot 362
Loeb, William and Nackey 773
Lonewolf, Joseph: Pottery by **598**
Long Island, Bahamas 386, 388, 391; Anglican church **392-393**
Long Island, N. Y.: Theodore Roosevelt's home 347, **351, 356, 357, 359,** 362
Long Walk (1864): Navajos 610
Longline fishing: Bluefin tuna 224, 227-228, 235
Loon Mountain, N. H. 799
Loran tower, St. Paul (island), Alaska **543**
Los Padres National Forest, Calif. 313, 334, 339
The Lost Fleet of Kublai Khan. By Torao Mozai. Nov., 634-649
Lost Outpost of the Egyptian Empire. By Trude Dothan. Dec., 739-769
Lott, John **325**
Louisiana: Wildlife refuge 362
Lowe family: Bahamas 374
Lower Klamath, Calif. 354
"Loy Krathong" (festival): Thailand 514
Loyalist refugees: Bahamas 370, 373, 374, 380
Lucy, Fred **313**
Lumber industry: ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339
Lungworms: Infesting bighorn sheep 314
Lus, Sir Pita 171
Lutheran church: Papua New Guinea property 164
Lyford Cay Club, New Providence (island), Bahamas 377
Lyon, France: Geodynamics 705

M

Mabie Canyon, Idaho **308-309**
Macá Indians: Paraguay **259**
Macaw-feather skirt **573**
McCarthy, John **451**
McClure's Magazine: Managing Editor (1908-1912) 74, 75, 85
McCoy, Charles "Sonny" 210-211
McDowell, Bart: ***A Decade of Inno-***

vation, a Lifetime of Service (Melville Bell Grosvenor). Aug., 270-278; ***Thailand: Luck of a Land in the Middle.*** Oct., 500-535
MacDowell Colony, N. H. 778
McIntosh, Susan and Roderick **403; *Finding West Africa's Oldest City.*** Sept., 396-418
McIntyre, Loren 553, photographer: ***Peru's Pilgrimage to the Sky.*** July, 60-69
Mack, Mrs. Levy 201, 209
Mackerel 394; Bluefin tuna feed on **221, 228-229,** 233, 235; Trap fishing 233; Traps **225**
McKillop, Kim **330-331**
McKinley, William: Assassination 344, 347, 354
McKnew, Thomas W. **274**
McNutt, Charlie 416-417
Madang, Papua New Guinea 161, 164
Madison, Fla. 209-210
Mae Klong (Kwai) River, Thailand: Bridge **519;** Dam 531
Magdalena, Río, Mexico 679; Post-El Chichón eruption **681**
Maggi, Giuseppe **688,** 691, 692, 821
Magnetometers: Underwater archaeology 639
Maize 133, **133,** 137, 139, **139,** 140
Majorca (island), Balearic Islands, Spain 699
The Making of America—17 New Maps Tie the Nation to Its Past. By Wilbur E. Garrett. Nov., 630-633
Mako sharks: Bluefin tuna predation 223, 232
Malabar Coast, India 15, **15-17;** *aini* forests 4, 11-12; *see also* Beypore; Calicut; Lakshadweep Territory
Malacca, Strait of: *Sohar* voyage 23, 29; Traffic in 23
Malaysian tourists: Thailand 506, 528
Malheur Lake, Oreg. 354
Mali 114; ***Finding West Africa's Oldest City.*** By Susan and Roderick McIntosh. Sept., 396-418
Malinkes (people) 108
Malone family: Bahamas 374
Maltese Cross (Theodore Roosevelt's cabin) 344, 347, **348**
Man O' War Cay, Bahamas 374
Manaschanok Klinsritsuk **505**
Manatees: Florida **352**
Manchester, N. H. 773, 775, **785**
Mancos River, Colo. 562
Mandés (people) 108 *see also* Dans
Mann, Richard 523, 526
Manti-La Sal National Forest, Utah: Coal mining 313
Manuscript, 13th-century **3**
Maple syrup production 789
Mapping techniques: Electronic mapping **452,** 821, 823; Seafloor mapping 821, 823, 824
Maps:
Africa's oldest city site (Jenne-jeno, Mali) 400
Alaska: Juneau avalanche hazard 292; Pribilof Islands 539
Anasazi pueblo sites 566-567
Arabian Sea-Indian Ocean-South China Sea Arab medieval trade route 12-13
Atlantic Ocean: Range and spawning grounds of Northern bluefin tuna 222
Bahamas 370-371
California: Alpine Meadows avalanche 287; Silicon Valley 464
Chaco Culture National Historical Park, N. Mex. 569
China: Kublai Khan's empire 637; Père David's deer, prehistoric range 482
Egyptian area of influence, late Bronze Age; Inset, Peoples of the Sea, and the Hittite Empire; Deir el-Balah located 742-743
El Chichón (volcano), and region, Mexico 663
Etosha Pan, Namibia, located 802
Europe: *The Historic Mediterranean; The Mediterranean Seafloor.* Dec. supplement
Florida, including population comparison 182-183
Four Corners country, U. S. 566-567, 610, 611
Herculaneum, Italy, located 687, 721
Hopi versus Navajo lands (1700-1982) 610, 611
Indian Ocean-South China Sea voyage of *Sohar* 12-13
Italy: Apuan Alps, in cross section, showing marble deposits 48; Herculaneum located 687, 721; Naples, Bay of 721
Ivory Coast 101
Japan: Mongol invasion sites 637
Jenne-jeno (site), Mali 400
The Making of America series announced. By Wilbur E. Garrett. 630-633
Maya trade routes, Central America and Yucatán Peninsula, Mexico; Cuello, Belize, located 133
Medieval Arab trade routes 12-13
Mediterranean Sea 742; *The Historic Mediterranean; The Mediterranean Seafloor.* Dec. supplement
Mexico: El Chichón region 663; Maya trade routes 133
Mongol Empire (1279) 637; Invasions of Japan 637
New Hampshire 774
Pacific Ocean, North: Pribilof Islands, Alaska; Fur seal range 539
Papua New Guinea 154-155
Paraguay 245; Paraná River and Itaipú Dam 246
Peru: Snow Star pilgrimage site 63
Pribilof Islands, Alaska 539
Roosevelt Country (U. S.), 1901-1909 346-347
Silicon Valley (industrial district), Calif. 464
Southwest (region), U. S.: *The Southwest,* The Making of America series. Nov. supplement
Thailand 506
United States National forests, parks, and wildlife refuges 312-313, 346-347; *America's Federal Lands; The United States.* Sept. supplement
West Africa: Bani River floodplain; Jenne-jeno, Mali 400
Mara, Nambuga 162-163
Mar-a-Lago (mansion), Palm Beach, Fla. 175, **207**
Marble: Bangkok, Thailand, temple **500-501; *Carrara Marble: Touchstone of Eternity.*** By Cathy Newman. July, 42-59; Herculaneum, Italy, basin **692;** Pozzuoli, Italy **720-721**
Marco Island, Fla.: Insecticide spraying **216**
Maricevich Fleitas, Anibal **255**
Marijuana 185, 191, 192, 333, 373
Marine biology *see* Bluefin tuna
Mariposa Grove, Calif. 345, 354, 357
Mark Twain National Forest, Mo. 322
Marker, John **312**
Marriage customs: Arab seamen 15, 18, 29; Hopis 613, **620-621;** Papua New Guinea 156; Thailand **486-487**
Marseille, France: Antipollution regulations 727; Mistral 703, 719
Marsh Harbour, Great Abaco (island), Bahamas: Marina 373-374
Marshall, Bob: Wilderness named after 311
Martínez, Antonio José 91
Martinez, Maria **604;** Pottery by **598, 604**
Martínez Ybor, Vicente 217
Masks: Hopi **617;** Ivory Coast 100, **112,** 123-124; Papua New Guinea "mudman" (ritualist) **148;** Peru 63, **64, 69**
Massa, Italy 44, 58
Mataria, Stanis, and family **162**
Matheson, "Rattlesnake" Riley **254,** 258
Maya: ***Unearthing the Oldest Known Maya.*** By Norman Hammond. July, 126-140
Mazzatenta, O. Louis, photographer: ***Paraguay, Paradox of South America.*** Aug., 240-269
Mead, Carver 441, 443
Meadow Mountain area, White River National Forest, Colo.: Ski resort **336-337**
Meadowlark **78**
Med-Dead conduit (proposed), Israel 730
Medals: U. S. Mint (1981 issues) **75**

Medicine and health: Diagnosis, computer-generated 425, 445, 446; Drug-induced productivity 472; Microelectronic devices **422, 423,** 425; Workaholics 471; *see also* Diseases
Mediterranean region 685, 742; *The Historic Mediterranean; The Mediterranean Seafloor.* Dec. supplement; *see also* Italy; Mediterranean Sea
Mediterranean Sea:
Bluefin tuna 227, 228, 238, **735**
The Historic Mediterranean; The Mediterranean Seafloor. Dec. supplement
The Mediterranean—Sea of Man's Fate. By Rick Gore. Dec., 694-737
Aridity, periods of 704-705, 712, **713;** Diagram **712**
Atlantic Ocean flows 703, 724-725, 726
Currents 703, 704, 722, 724-725, 726
Evaporation 703, 704-705, 712, 724, 726
Flooding 721; Prehistoric 705, 706
Formation 700-701, 705, 710; Diagrams **710-711**
Marine life 725, 728, 735, **735;** Endangered by pollution 726-727
Minerals 704, **713,** 717-718; Diagram **712**
Pollution 695, 704, 715, 721, 726-727
Salinity 703, 724-725, 726
Sedimentation 697, 706, 722, 726, 727-729
Temperatures 703, 725, 726; Thermogram **702**
Water-diversion projects (proposed) 730, 732, 736
Medora, N. Dak.: Theodore Roosevelt's cabin 344
Mekong River, Southeast Asia 504, 522-523, 531
Melbourne, Fla. 181, 218
Meltzoff, Stanley 222, artist: ***Plight of the Bluefin Tuna.*** Aug., 220-239
Melville Bell Grosvenor, a Lifetime of Service. By Bart McDowell. Aug., 270-278
Mennonites: Paraguay 258-259, **260,** settlement **260-261**
Menuhin, Yehudi 74
Merchant seamen: Arabs 6, 12, 20; Chinese **41**
Merchant ships, medieval: Arab construction 2, **3,** 4, 6, 11, 12
Merculief, Guy **549**
Merculief, John R. and Piama, and family **537**
Merculief, Rufina 548, 550
Merculief, Victor N. **549**
Merculief and Merculieff families: Pribilof Islands, Alaska: Spelling decree 550
Merculieff, Larry 536, 542-543, 550, 552
Merculieff, Leatha and Phyllis **541**
Mercury contamination: Bluefin tuna 225, 227, 232, 235
Merriam, C. Hart 344, 358, 360
Merrimack River, Mass.-N. H. 774-775
Merritt Island, Fla.: Dusky seaside sparrow habitat, former 200
Mesa Verde Anasazi 559, 567, 588, 589; Masonry structures **558, 559,** 567; Population growth 595; Pottery **595;** Stone structures 588-589
Mesa Verde National Park, Colo. 88-89, 354, 562, 588-589; Cliff Palace 88-89, **558,** 589
Mexican Volcano Spews Death and Devastation. By Boris Weintraub. Nov., 654-684
Mexican War 611
Mexico: ***The Disaster of El Chichón.*** By Boris Weintraub. Nov., 654-684; Trade, early: Anasazi 567, 572, 578, 585, Maya 133, Mogollon 600; ***Volcanic Cloud May Alter Earth's Climate.*** By Robert I. Tilling. Nov., 672-675
Mexico, Gulf of: Bluefin tuna catch 223, 235
Miami, Fla.: ***Florida—A Time for Reckoning.*** By William S. Ellis. Aug., 172-219
Blacks 192
Construction **186,** 192
Crime 172, 185, 197, homicide rate 197
Cubans **184,** 184-185
Detention center 189, 192
Haitians 189, 192
Race riot 192
Voodoo sect 193
Miami Beach, Fla. **175;** Haitian refugee landings 192; Historic district **206;** Jews **187,** 193, 195; Retirees **187,** 195
Miami International Airport, Fla.: Drug smuggling 185; Jamaicans **194**
Michelangelo: Marble source 44, 48, 55; Sculpture: "David" 44, 58, "Moses" 44, "Pietà" 44, **54,** signing of 55
Michtom, Morris 359
Microcomputer in automobile 452
Microelectronics: ***California's Silicon Valley.*** By Moira Johnston. Oct., 459-477; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457
Microprocessor ("computer on a chip") 463, 466, 469; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457; Pioneers of **462,** 463, 466
Microscopy: Ant with chip **431**
Mid-Ocean Ridge 822-823; Mapping techniques 821, 823, 824
Middle Ages: Arab ship construction 2, **3,** 4, 6, 11, 12; Irish 5, 6; Trade items, eastern 11, 12, 15
Migrant workers: Florida **194**
Migration, animal: Fur seals 536, 538, 539, map 539; ***Plight of the Bluefin Tuna.*** By Michael J. A. Butler. Aug., 220-239
Migration, bird 351, 359
Migratory Bird Treaty Act 359, 362
Miksicek, Charles 137, **139**
Military operations: Robot potential 425, 450
Miller, Eugene and Keith **322**
Mimbres culture 594, 600, 601; Human sacrifice depicted **600;** Pottery **594,** 597, **600-601**
Mimbres Foundation 601
Mimbres Valley, N. Mex.: Pottery 600
Minerals: Cyprus **713,** 717-718; Mediterranean Sea 704, **712;** Thailand 507, 520, 528; U. S. public lands 309, 310, 313, 325, 335, 337, 339
Minicomputer software 466
Mining: Papua New Guinea 161, **162-163;** U. S. federal lands **308-309,** 310, 313, 325, 335, 337, 339; *see also* Quarrying
Minnesota: Computer education 448
Minoans 704, 707
Minsky, Marvin 448, **450**
Minturn, Colo. 337
Missions, Spanish: New Mexico 89, 93
Missouri: National forests 321-322, 339
Mistral winds: Southern France 703, 704, 719, 722, 726
Misty Fjords National Monument, Alaska: Molybdenum deposit 335, 339
Mitsubishi 473
Modoc National Forest, Calif. 314
Mogollon culture 563, 567, 589, 594, 600; Pottery **594;** *see also* Mimbres culture
Molybdenum deposits: Misty Fjords National Monument, Alaska 335, 339
Monadnock (mountain), N. H. 778
Mondragón Barajas, Demetrio 678, 679
Money box: Herculaneum, Italy **687**
Mongkut, King (Siam) 491, **491**
Mongols: ***The Lost Fleet of Kublai Khan.*** By Torao Mozai. Nov., 634-649
Monolithic Memories 472-473, 474
Monongahela National Forest, W. Va.: Clear-cutting controversy 319, 321
Monsoon winds: Indian Ocean 12, 13, 14, 20, 23, 24; South China Sea 29
Montagne, Monty E. 334, 335
Montana: National forests 311, 313, 319, 321, 358
Moore, Gordon 463, 468
Moore, Henry: Sculpture by 44, 48
Mooser, Federico 664, 667, 669
Morocco 732, 736
Morrow, Beth 287, 288, 289
Mosaic: Fish **734**

Moses: Exodus route (theory) 739, 740, 742, 763, 821
Mosques: China **40;** Mali **399,** 414; Thailand: Women worshippers **529**
Mosquito control: Florida 200, **216**
Mosquito Inlet Bird Reservation, Fla. 352
Moss, Madonna **312**
Mossa quarry, Italy 55
Mother Corn **624,** 626, **627**
Motion, synthesized: Computer-produced **424**
Motorola 473; Microprocessor **420,** cover
Mott, Jim **298**
Mount Hood National Forest, Oreg. **319**
Mount Olympus National Monument, Wash. 358
Mount Washington Observatory, N. H. 310, **790-791,** 794-795, 799
Mountain View, Calif.: Semiconductor laboratory 468
Mozai, Torao: ***The Lost Fleet of Kublai Khan.*** Nov., 634-649
Mud bath: Vulcano (island), Italy 709, 712, **718-719**
Mud Bowl: North Conway, N. H. **788-789**
Mud smearing ritual: Papua New Guinea **148-149,** 154, 155
Mudd, Samuel 201
Mudie, Colin 7, 11
Muir, John 344, 345, 354, 357, 799
Muir Woods, Calif. 358
Mules: Thera (island), Greece 707, **707**
Müllerreid, Frederick 661, 664
Murals: Rio Grande Anasazi kiva **554,** 592
Murres **546,** 552
Musa, Jebel (peak), Morocco 704
Musalam (*Sohar* crewman) 18, 29, **34**
Muscat, Oman: *Sohar* 13, 40, departure of 12, 14
Musical instruments: Balaphons 104; Drums, tree-trunk 166; Flute, bamboo 166; Ocarina, clay **136,** 139, **140**
Muslims: Thailand 494, 495, 507, 508, 528, **529,** 534
Mustahail bin Ahmed Al Masshini, Sheikh **38**
My Antonia (Cather) 71, 75, 81, 93; Quotations from 71, 81, 82, 83, 93
Mythology: Roman 704
Mytilinii, Samos (island), Greece 705

N

Nakamura, Koji, photographer: ***The Lost Fleet of Kublai Khan.*** Nov., 634-649
Namibia: ***Family Life of Lions.*** By Des and Jen Bartlett. Dec., 800-819
Naming ceremonies: Hopis 619, **624,** 626, **627,** 628
Nampeyo 597, 603; Pottery by **597**
Nampeyo, Fannie **605;** Pottery by **597**
Nanatsi, James **156**
Nanh-Sohou (wisdom mask): Ivory Coast **112,** 123-124
Naples, Italy 715, 717, 718, 721, 727, **724-725;** Geological foundation 713, map 721; Suburb **689**
Naples, Bay of, Italy 688; Maps 687, 721; Roman ruins submerged **720-721, 722, 723;** Volcanic instability 713, 717, 721
Nashua, N. H. 775
Nassau, New Providence (island), Bahamas **366-367,** 377, 384, 388, 391, 394, **394-395,** 395; Sloop race **376-377**
Nation in the Making: Papua New Guinea. By Robert J. Gordon. Aug., 143-149
National Aeronautics and Space Administration 181; Videotape of space shuttle landing **650-653**
National Audubon Society 174, 335, 362; Sealing treaty, approval of 419, 539, 544
National Conservation Commission 346, 354
National forests and grasslands 279; *America's Federal Lands; The United States.* Sept. supplement; ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339; ***Roosevelt Country: T. R.'s Wilderness Legacy.*** By John L. Eliot. Sept., 340-363
Clear-cutting 312, 319, **321, 326;** Protests against 319, 321, 327
Forest fires 319, 322-324, **328-331,** 332
Herbicide spraying 316, 333
Land-use controversy 307, 310, 311, 312-313, 319
Maps 312-313, 346-347
Mineral exploration: Application and lease 310-311, 313, 335, 339, paperwork **325**
Mining **308-309**
Number and total acreage 310
Rangeland 310, 312, 332-333
Recreation 310, 312; Off-road vehicles 333-335; Overcrowding 324, **338;** Skiing **336-337,** 339
Reforestation 319, 321-322, 327
Theodore Roosevelt's administration 310, 324, 340, 346, 358
Timber harvesting 310, 316-317, **318,** 319
Watershed protection 310, 312, 316,339
Wildlife protection 313, 317, 339
National Geographic Magazine (NGM): ***A Decade of Innovation, a Lifetime of Service*** (Melville Bell Grosvenor). By Bart McDowell. Aug., 270-278; The Making of America map series 630-633
National Geographic Society (NGS): Awards earned 553, 824; ***A Decade of Innovation, a Lifetime of Service*** (Melville Bell Grosvenor). By Bart McDowell. Aug., 270-278; Field assignments 553; Grants 1, 128, 129, 130, 688, 692, 824; ***President's Report to Members: An Exciting Year of Discovery.*** By Gilbert M. Grosvenor. Dec., 820-824; Research projects 820-821; *see also* Atlases; Books; Maps; Television films
National historical parks: *America's Federal Lands; The United States.* Sept. supplement
National monuments: United States 85, 88, **201,** 335, 339, 340, 346, 358; *America's Federal Lands; The United States.* Sept. supplement; *see also* Bandelier; Hovenweep
National Park System Advisory Board: Melville Bell Grosvenor headed 278
National parks: Ivory Coast 114-115, 117, **122-123;** United States 174, 278, 358; *America's Federal Lands; The United States.* Sept. supplement; ***Roosevelt Country: T. R.'s Wilderness Legacy.*** By John L. Eliot. Sept., 340-363; *see also* Mesa Verde National Park
National Science Foundation: Grants: Jenne-jeno (site), Mali excavation 408
National Semiconductor 468, 471, 476
Natural gas: Thailand 504, 506, 507, 520, 530, 531, 534; United States public lands 311
Natural resources: *America's Federal Lands; The United States.* Sept. supplement; Southwest (region), U. S. 563, 567, 582, map 566-567
Navajo Mountain, Utah 612
Navajos 562, 582, 592, 610-611, 612, 624-626; Rock painting **72**
Navasie, Joy (Frog Woman) **605;** Pottery by **598, 605**
Navigation in Middle Ages: Arab seamen 12, 14, 22
Naymlap, King (legendary) 821
Nazario Sargen, Andrés 184
Neades (mythical beasts) 704, 705, 706
Neanderthal remains, first found: Gibraltar 701
Nebraska **360-361;** ***The Country of Willa Cather.*** By William Howarth. July, 71-93
Nelson, Leroy and Laura 287, 289
Neolithic man: Rock of Gibraltar 701
Nero (Roman emperor): Coin commemorating **690**
Netherlands: Tulip bulbs, imported 526
Neuman, Wilbur K. **206**
Nevada: National forest **309**
New Day for Alaska's Pribilof Islanders. By Susan Hackley Johnson. Oct., 536-552

New England *see* New Hampshire
New Guinea (island): ***Papua New Guinea: Journey Through Time.*** By François Leydet. Aug., 150-171; ***Papua New Guinea: Nation in the Making.*** By Robert J. Gordon. Aug., 143-149
New Hampshire 325; ***Contrary New Hampshire.*** By Robert Booth. Dec., 770-799
Forests 777, 789; Industry 774, **776-777,** 789, 792
Hiking 778, 792, 793
Legislature 770, **772-773,** 799
Map 774
Maple syrup 789
National forest *see* White Mountain National Forest
Nuclear power station 778-779, **780-781,** 783
Shipbuilding 783-784
Ski industry 793-794, 799
Taxes: Controversy 773, 775, 785, 799
Tourism 775, **775,** 778, 784, **786-787, 790,** 791
Weather station *see* Mount Washington Observatory
Windpower 778, 791, 795
New Kingdom (Ancient Egypt) 742, 745, 760, 762, 763, 821
New Look at the Shuttle. By Cliff Tarpy. Nov., 650-653
New Mexico 610, 611, 623; Anasazi sites 358, 563, remnants of farms **576-577;** Indians 89, **90,** 91; National forest 319, 332; *The Southwest,* The Making of America series. Nov. supplement; *see also* Four Corners Country
New Providence (island), Bahamas 371, 377, 378, 394 *see also* Nassau
New World explorers: Columbus 371, 373, 375, 378; Coronado 592, 596; Ponce de León 172, 182
New Year celebration: Ivory Coast *see* Dipri festival
New York 347, **355;** Computer education 448; *see also* Long Island
Newark, Del.: Factory robots 450-451, **454-455**
Newell, Allen **451**
Newell, Frederick H. 351
Newman, Cathy: ***Carrara Marble: Touchstone of Eternity.*** July, 42-59
Newspapers, electronic 454
Nicapa, Mexico: El Chichón eruption 667, 669, 684
Nice, France: Antipollution measures 727
Nicoli, Carlo 44, 48, 58
Nielsen, David and Niels **798**
Nile (river and valley), Africa 732; Gorge 705
Nile Delta, Egypt: Sedimentation 726, 727-729
Niman ceremony: Hopis 619, 628
Niobrara Forest Reserve, Nebr. 360
Nixon, Richard 334; Key Biscayne, Fla., property **176-177,** 192
Nobel prize winners 446, 468
Noguchi, Isamu: Sculpture 44
Non Mak Mun (refugee camp), Thailand 522
Nong Chan (refugee camp), Thailand **530-531**
North Africa: Geodynamics 701, 706, 709, 726, 727-729, 732, 736
North Carolina: National forest 324
North Conway, N. H. 793
North Dakota 342, **361;** Badlands 344, 347, **348-349**
North Lake, Canada: Bluefin tuna fishing 231
Northern bluefin tuna **222**
Norway: Tuna 224, 232, 235, 239
Nose ornaments: Fulani women **406, 407**
Nova Scotia (province), Canada: Bluefin tuna 220, 223, 233, ranching *see* Janel Fisheries, research 235-236, sportfishing 223, 231; Dory fishing 231
Noyce, Robert 429, 459, **462,** 463, 468, 471
Nuclear power plant: New Hampshire 778-779, **780-781,** 783
Nunn, Ernie **336**

O

O Pioneers! (Cather) 75, 76, 79; Quotations from 76, 86-87
ORV *see* Off-road vehicles
Obsidian deposits: Lipari (island), Italy 717
Ocala, Fla.: Horses 208, 210
Ocala National Forest, Fla. 339
Ocarina, clay **136,** 139, **140**
Ocean-floor mapping 821, 823, 824; Map **822-823**
Ocean-Niger railway: Terminus 108
Off-road vehicles 316, 333-335
Office automation 454, 455, 456
Oil and gas drilling: Ivory Coast 100, **120;** United States federal lands 310-311, 313, *America's Federal Lands; The United States.* Sept. supplement
Oil refining: Bahamas 370, 371
Oil wells: Impact on environment 311, 313
Ojo Caliente River, N. Mex.: Anasazi farms near **576-577**
Okamatsu, Sozaburo 444-445
Okeechobee, Lake, Fla.: Canals 183; Drought (1981) 174, **215**
Oklahoma: Federal lands 342, 344, 350
Old Man of the Mountain, Franconia Notch, N. H. **798,** 799
Olives: Italy **732**
Olmec people: Maya trade 134, 138
Olson, Bob **448**
Olson, Charlie **473**
Olympic elk 358
Olympic Peninsula, Wash. 358
Oman, Sultanate of: *Sohar* project: ***In the Wake of Sindbad.*** By Tim Severin. July, 2-41
Open-pit mining: Papua New Guinea 161, **162-163**
Opium: Southeast Asia 419, 493, 494-495, 506, 523, 526, 527, 532, harvest **532,** heroin 504, 507
Oraibi, Ariz. 610, 612
Oranges: Florida **211,** frozen juice concentrate 211, 218
O'Rear, Charles, photographer: ***California's Silicon Valley.*** Oct., 459-477; ***The Chip: Electronic Mini-marvel.*** Oct., 421-457
Oregon 313, 354, 358; National forests **319, 320, 321, 326, 330-331,** 333, unemployed workers **322-323**
Organic Act of 1897 321
Organic-resist pottery: Cuello site, Belize **136**
Orlando, Fla. 217 *see also* Walt Disney World
Ortega, Eduardo **176,** 192-193; Mansion **176-177,** 192-193
Ostuacán, Mexico: El Chichón monitoring station 667, 669
Our National Forests: Problems in Paradise. By Rowe Findley. Sept., 306-339
Outliers: Chaco Canyon, N. Mex. 566, 567, 568, 575, 579, 582, 585, 586, 587, 588; *see also* Bis sa'ani Pueblo
Overseas Highway, Fla. **198-199**
Oyster Bay, Long Island, N. Y.: Theodore Roosevelt's home 347, **351, 356, 357, 359,** 362
Ozark Plateau, Ark.-Mo. 321-322, 339

P

Pacific flyway: Migratory birds 351, 359
Pacific islands *see* New Guinea
Pacific Ocean floor map 822-823
Packard, David **469**
Page, Jake: ***Inside the Sacred Hopi Homeland.*** Nov., 607-629
Page, Susanne, photographer: ***Inside the Sacred Hopi Homeland.*** Nov., 607-629
Pahos (Hopi prayer sticks) 629
The Palace (high-rise condominium), Miami, Fla. **186**
Palenque (ruins), Mexico: El Chichón eruption, effects of **682, 683,** 684
Palisade (Anasazi ruins), N. Mex. 592
Palm Beach, Fla. 175, 184, **207, 208-209,** 218
Palm oil: Ivory Coast 101
Palma de Majorca, Spain 730
Palo Alto, Calif.: Electronics industry 459, 464, 468
Panama City, Fla.: Resort 209
Pandas: NGS television special 824

Panther-man ritual: Ivory Coast 100, **109**
Panthers: Florida 200
Paper mills: Florida **213**; New Hampshire **776-777,** 789, 792
Papua New Guinea: ***Journey Through Time***. By François Leydet. Aug., 150-171; ***Nation in the Making***. By Robert J. Gordon. Aug., 143-149
Paradise Island, Bahamas 377, 379, **379,** 394
Paraguay, Paradox of South America. By Gordon Young. Aug., 240-269
Agriculture 254-255, 259, **260-261,** 262-263, cattle ranching 255, 258, **262-263,** crops 242, 245, 259, 260, **260,** 263, **266-269**
Area 240, 245
Capital *see* Asunción
Economy 240, 242, 244, 245, exports 242, 247, 254, foreign investment 244, 250, *see also* Agriculture, *above,* Hydroelectric dams, *below*
Facts and figures 245
Flag 243, **245**
Future prospects 268-269
Geography: Chaco 243, 244, 245, 258, 259, **260-261,** east 243, 245, 258, 259, 262, **268-269,** rivers 242, **242-243,** 243, 244, **246-247,** 258
Government 240, 245, **256-257,** criticism 251, 255, 263-265, 268, elections 240, military 240, **241, 256-257,** 258, 268, 269, political parties 240, 256, 258, 268
Guaraní heritage 243, 244, 245, 250
History 245, 255, 258, Chaco War (1932-1935) 245, 250, colonial 242, 245, Jesuit missions **244,** 250, War of the Triple Alliance (1865-1870) 245, 250
Hydroelectric dams **240,** 244, **247-249,** 250, 254, diagram and map 246
Indians 244, 255, **259,** 264-265, **264-265,** 268
Land ownership 254-255, by farmers 262, by foreigners 244, 262-263, 264, by Indians 264, 265
Literacy rate 245, 251
Maps 245, 246
Population 240, 245, Chaco 244, 245; Foreign: Americans **254,** 258, Japanese **260,** Mennonites 258-259, **260-261;** Wartime decimation (1865-1870) 245, 250
President *see* Stroessner, Alfredo
Roads 243, 253-254, 258, 259, 262, 269
Smuggling 242, 253, 254, 258
Stability 240, 242, 244, 255, 268
Paraguay River, Paraguay 242, **242-243,** 243, 258
Parakeet auklets **547**
Paraná River, South America: Guairá Falls 244, **246;** Hydroelectric dams 244, 246-247, **247-249,** 250, diagram and map 246
Parrots, Puerto Rican 313, 316, 339
Patience, Gloria 386, 388
Patpong Road, Bangkok, Thailand 500, 504
Patterson, Carolyn Bennett **276**
Patursson, Trondur 14, 20
Pavelka, Annie Sadilek 81, 82
Payne, Melvin M. **274**
Pearce, Lorraine **274**
Pearl River, People's Republic of China: *Sohar* voyage 30, **36-37,** 38, 40
Pecos Pueblo, N. Mex. 589
Pelican Island, Fla. 346, 350-351, **353**
Pelicans, brown 350-351, **353,** 362
Pensacola, Fla.: U. S. Naval air station 197, 209
Pensacola Beach, Fla. **218-219**
Peoples of the Sea 742, 768
Peppers: Italy **732**
Père David's deer 419; ***Père David's Deer Saved From Extinction***. By Larry Kohl. Oct., 478-485
Antlers **478-479, 483, 484,** 485, **485;** Chinese drawing **481;** Grass-tufted 482, **483, 484**
Bucks 482, **478-479, 483-485**
Chinese name 479
Dominance determination **484-485,** 485
Extinct in wild 479, 480, 482, 485
Gestation period 485
Habitat 479
Number of 480, 485
Range, prehistoric 482; Map 482
Territory marking **484,** 485
Perón, Eva and Juan: Marble statues 55, **58**
Peru: Avalanche (1970) 295; ***Peru's Pilgrimage to the Sky***. By Robert Randall. July, 60-69
Peruvian shepherd boy **141**
Peshtigo, Wis.: Fire (1871) 329
Petersborough, N. H.: MacDowell Colony 778
Petersen, Kenneth L. 565, 589
Peterson, R. Max 317, 319, 333
Petroglyphs: Spiral 607; *see also* Rock art
Petroleum *see* Oil
Phangnga Bay, Thailand **526-527,** 529
Pheasant feathers **79**
Phet Buri Province, Thailand: Cottage industry 496
Philistines 742, 743, 768
Phlegraean Fields (volcanic area), Italy 713, 721, 736
Phoenicians: Bluefin tuna trapping 228
Phosphate mining: Idaho **308-309**
Photography 141; Aerial archaeology technique **568,** 582, 585; Electronic imaging system 821, 823; Infrared *see* Thermal imagery
Phuket Island, Thailand: Rubber tapper **527**
Pichucalco, Mexico 667, 669, **670, 671,** 684; Refugee shelter food line **679**
Pidgin: Papua New Guinea **144,** 145, 150, 155, 162, 165, 166, 171
"Pietà" (Michelangelo) 44, **54;** Signing of 55
Pietrasanta, Italy 44, 48
Pigs: Papua New Guinea 150, 153, 163, **167, 169**
Pikes Peak, Colo. 310
Piki (corn bread) 613
Pilgrimages: Hopis **606,** 607, **608-609,** 609, 612, 629; ***Peru's Pilgrimage to the Sky***. By Robert Randall. July, 60-69
Piñata **184**
Pinchot, Gifford 324-325, 344, **347,** 351, 358, 360
Pinder, Lewis 372-373, 375
Pindling, Lynden O. **382**
Pine Knot (cottage), Charlottesville, Va. 347
Pipe, tobacco: Hopis 607, **608**
Piracy: Bahamas 365, 370, 375, 377, 378, 395; Gulf of Thailand 528; South China Sea 30, 35
Piraeus, Greece: Freighters **708**
Pisgah National Forest, N. C. 324
Plains Indians 592, 631
Plane crashes: Bahamas 372-373, **372-373;** Florida **190**
Plaster cast: Pompeii victim **716-717**
Plastering: Earliest known, Maya 130, **130,** 140
Plate tectonics 93, 664, 673, 823, 824; ***The Mediterranean – Sea of Man's Fate***. By Rick Gore. Dec., 694-737
Plight of the Bluefin Tuna. By Michael J. A. Butler. Aug., 220-239
Pliny the Elder 223, 238
Plywood lathe **316**
Poaching: Bahamas 378; Ivory Coast 114, 115, 117, 123
Pocket watch, mechanics of **444,** 444-445
Point of Pines, Ariz. 589
Pokou, Queen (Ashanti Kingdom) 108
Pollution: California 470; Mediterranean Sea 695, 735; Nevada **309;** *see also* Air pollution; Water pollution
Polo ponies **208-209**
Polocrosse player **157**
Polygamy: Arab seamen 18
Pomegranates: Turkey **732**
Pompeii, Italy 687, 688, 690, 713, 721, 820; Victim, plaster cast of **716-717**
Ponce de León, Juan 172, 182
Porcelain, 16th-century Chinese **481**
Porcupines: Lion predation 802, **814,** 815
Poro (Sénoufo philosophy) 105
Port Moresby, Papua New Guinea **143,** 145, **146, 147,** 156, **160-161,** 166, 170, 171

Port St. Joe, Fla.: Paper mill **213**
Portfolio magazine 278
Portsmouth, N. H. 775, **782-783,** 783, 784
Posi (ruins), N. Mex. 592
Post, Marjorie Merriweather: Winter mansion 175, **207**
Pot-building techniques: Pueblo Indians 593, **603, 604**
Pothunters: Anasazi sites 561, 563, 579, 592, 601
Potsherds: Anasazi 588; Cuello site, Belize **136,** 137; Deir el-Balah (site), Gaza Strip 743, **745,** 746, 752, 753, **763;** Jenne-jeno (site), Mali 398, **399,** 400, 402, 410, 413-414; Sikyatki polychrome **602**
Potters: Jenne, Mali **409,** 417; ***Pueblo Pottery: 2,000 Years of Artistry.*** By David L. Arnold. Nov., 593-605
Potter's Cay market, Bahama Islands 394, 395
Pottery: Cuello site, Belize 128, **136,** 138-139, **140;** Jenne, Mali **409,** 417; Jenne-jeno (site), Mali 407, **408,** 410, 414, 417; Ocarina **136,** 139, **140;** *see also* Potsherds; Pueblo Pottery
Pottery Mound, N. Mex.: Kiva mural **554**
Pozzuoli, Italy: Earth rising 713, 721; Ruins, ancient **720-721**
Prachin Buri Province, Thailand 518
Prachuap Khiri Khan Province, Thailand: Cottage industry 496
Prairie dogs, black-tailed **361**
Prairie rose 75, **77**
Pratunam market, Bangkok, Thailand 512
Preacher's Cave, Eleuthera (island), Bahamas 383
Presidential Range (mountains), N. H. 792, 795
President's Report to Members: An Exciting Year of Discovery. By Gilbert M. Grosvenor. Dec., 820-824
Pribilof Islands, Alaska 419; ***New Day for Alaska's Pribilof Islanders.*** By Susan Hackley Johnson. Oct., 536-552
Pribylov, Gerassim 538, 539
Princeton University: Honorary degree recipients (1931) 74
Privacy, electronic invasion of 452, 456
Prix Femina Americain: Recipient: Willa Cather 74
The Professor's House (Cather) 75, 88; Quotations from 88, 89
Proselytizer: Fort Lauderdale, Fla., beach **203**
Prosthetics: Electronic limbs **422**
Puberty rites: Papua New Guinea 166
Public domain *see* Federal lands
Pueblo Alto, N. Mex. **568,** 585
Pueblo Bonito, N. Mex. **555, 556-557, 570-571,** 574-575, 578, 587; Map locating 567
Pueblo Indians 89, **90,** 91 *see also* Hopi; Ancestors *see* Anasazi
Pueblo Pottery: 2,000 Years of Artistry. By David L. Arnold. Nov., 593-605
Black-on-white ware 594, **594,** 595, **595-596, 597, 598, 600-601**
Blackware **596, 597, 598, 605**
Engraved **597, 598, 605**
Figurines **597, 598,** 599, **599,** cover
Firing 594, 596, 603
Funerary objects **600-601;** Kill holes **600-601**
Glaze decoration **595-596**
Looting of 601
Paint 593
Polychrome **593,** 595, **595-596, 597, 598,** 600, **602, 604, 605**
Pot-building 593, 594, 603, **603, 604,** utensils **602, 603, 604**
Redware **594-595**
Spanish influence 596, **596**
Symbols **597, 605;** Sacred **596, 602,** diagram **603**
Time chart **594-598**
Trade 594, 595, 600, 601, 604
Turquoise inlay **597**
Utensils **602, 603, 605**
Pueblos: ***The Anasazi—Riddles in the Ruins.*** By Thomas Y. Canby. Nov., 554-592; *see also* Acoma Pueblo, N. Mex.; Chaco Canyon, N. Mex.; Cochiti Pueblo, N. Mex.; Mesa Verde National Park, Colo.; San Ildefonso Pueblo, N. Mex.; Santa Clara Pueblo, N. Mex.
Puerto Presidente Stroessner, Paraguay 250
Puerto Rico: National forest 313, 316, 339, 347; Wildlife refuges 347, 362
Pukue, Fidelis **170**
Pulitzer Prize recipient: Willa Cather 74, 75
Purse seiners: Bluefin tuna 224, 227, 239; Operation 227
Puyé (ruins), N. Mex. **582-583,** 592
Pyramids: Cuello site, Belize **126-127, 131, 132,** 134; Design 134

Q

Qaboos bin Said, Sultan (Oman): Sindbad project financed by 11
Qattara Depression, Egypt: Canal, proposed 732
Qöyawayma, Al: Pottery by **598**
Qoyllur Riti (sacred place), Peru: ***Peru's Pilgrimage to the Sky.*** By Robert Randall. July, 60-69
Quarrying: ***Carrara Marble: Touchstone of Eternity.*** By Cathy Newman. July, 42-59
Quartz-crystal watch: Mechanics of **444-445,** 445
Quavehema, Alonzo 613, 624
Querceta, Italy 44, 48, 58
Quotskuyva, Dextra 603, **603;** Pottery by **602, 603**

R

Rabaul, Papua New Guinea **164,** 164-165; Japanese war veterans **165**
Race, relay: Pueblo Indians **90**
Race riot: Miami, Fla. 192
Radiocarbon dating 1, 128-129, 402, 408, 410, 413, 563, 673
Radiotelemetry: Grizzly bears 313
Raffia: Panther-men costumes **109**
Railroad handcar: Willa Cather riding **84**
Rain: Importance to Hopis 612, 613, 616, 618, 622, 626, 629
RAM chips (random-access memory) **430,** 439, 440, 473, 476; Japanese manufacturers 440-441, 473, 476
Rama IX, King (Thailand) *see* Bhumibol Adulyadej, King
Rama kings (Siam) 491, **491,** 494, 507, 512
"Ramakien" (epic): Thailand 515; Dancer **514-515**
"Ramayana" (Hindu epic) *see* "Ramakien"
Ramu River, Papua New Guinea **152-153,** 161
Randall, Robert: ***Peru's Pilgrimage to the Sky.*** July, 60-69
Randazzo, Sicily (island), Italy: Statue of patron saint 713, **714;** Volcano damage 712-713, 714, **714**
Rangeland: National forests 310, 312, 332, 333
Rappelling: New Hampshire **798**
Ras el Bar, Egypt: Erosion 728-729
Rassais, John **788**
Rattlesnakes: Hopi dance 622
Raymer, Steve, photographer: ***Thailand: Luck of a Land in the Middle.*** Oct., 500-535
Readman, Tim 20, **26,** 35
Reagan, Ronald 191, 316
Red Cloud, Nebr. 76; Cather home 76, **80,** 81, **81**
Redcliff, Colo. 337
Redwood National Park, Calif.: Creation of 278
Reefs: Bahamas **364-365,** 371, 375, 376, **390-391;** Destruction of 386, 388
Reforestation: Douglas fir 327; Monongahela National Forest, W. Va. 319, 321; Southeastern U. S. 321-322
Refugees: Cambodian **466;** Florida 172, 189, Cubans 185, 189, 210-211, Haitians **188-189,** 192; Mexican, from El Chichón eruption 666-667, 669, 670, 676, 678, 679, **679;** Thailand 496, 504, 506, 507, 518-519, 522, 528, **530-531;** Vietnamese boat people 13, 30, **34-35,** 38
Religious ceremonies and processions: ***Inside the Sacred Hopi Homeland.*** By Jake Page. Nov., 607-629; ***Peru's Pilgrimage to the***

Sky. By Robert Randall. July, 60-69; Sri Lanka **19**
Renagi Lohia, Renagi **158**
Report to Members: An Exciting Year of Discovery. By Gilbert M. Grosvenor. Dec., 820-824
Retirees: Florida 172, **173**, 174-175, 181, **187**, 195, 217, 219
Rhinoceros bones, prehistoric: Greece **704**, 705
Rhône (river), France-Switzerland: Canyon 703, 705, 719
Rice University: Jenne-jeno (site), Mali: Excavation support 408
Rimini, Italy: Resort **728-729**
Rings, gold: Herculaneum, Italy **686**, 691
Rio Grande (river), Mexico-U. S. 562, 589, 592; Pueblos near 623, pottery **595-596**
Rio Grande Anasazi 567, **584**, 589, 592; Pottery **595-596**; Ruin **582-583**
Rivera, Nick **337**
Riverside County, Calif.: Fire fighting 324
Riviera (region), France 727, 730, **730-731**
Robots in industry 425, 450-451, 454, **454-455**, 456
Rock art: Anasazi 562, 570, **577, 579**, 589, 592; Hopi 607; Navajo **72**
Rock bands: Aleuts 549, **549**
Rock climbing **798**
Rocky Mountains, Canada **296**
Rogers, Woodes 378
Rogers Pass, Selkirk Mountains, Canada: Avalanche control 295, 297
Rogue River Rough Riders **330-331**
Rohn, Arthur H. 565, 568, 589
Rolle, Olive 394-395, **395**
Roller skater: Coconut Grove, Fla. **187**
Roman Catholic Church: Papua New Guinea 156, 164, 171; Paraguay **255**, 263, 264, 265
Roman Empire 704, 721, 730; Marble quarrying 44, 46-47; Mythology 704; Remnants **720-721, 722, 723** *see also* Herculaneum
Romaso, Lukis 155, 164
Romora Bay, Harbour Island, Bahamas: Club 378, 383
Rookeries, seabird: Pribilof Islands, Alaska 547, **547**, 552
Rookeries, seal: Pribilof Islands, Alaska 536, 538, 539, 544
Roosevelt, Elliott 195
Roosevelt, Franklin Delano 195, 360
Roosevelt, Quentin 362
Roosevelt, Theodore 279, 310, 324; ***Roosevelt Country: T. R.'s Wilderness Legacy***. By John L. Eliot. Sept., 340-363
Conservation efforts 340, 346, 347; Buffalo 342, 344, **347**, 350; Forest reserves 340, 346, 358, 360; Map 346-347; National monuments 340, 346, 358; National parks 340, 342, 354; Wildlife refuges 340, 346, 347
Dynamism 340, 344, 362
Homes and ranches: Chimney Butte 344, 347, **348**; Elkhorn 344; Pine Knot 347; Sagamore Hill 347, **351, 356, 357, 359**, 362
Hunting 340, 343, 344, 362
Nature studies 340, 343, 351, 360, 362
North Dakota badlands years 344, 347, **348**
Outdoorsmanship 344, **345**, 347, **349, 351**
Writings 344, 357, 360
Rope workers: Dhow construction 4, 12, 13
Ropemaking: Coconut-fiber rope 4, 12, 13
Rosa, Lake, Great Inagua (island), Bahamas 371
Rose, prairie 75, **77**
Rovirosa Wade, Leandro 678-679
Roxy Bar, Bangkok, Thailand 500, 504
Royalty at Work: Thailand. Photos by John Everingham. Oct., 486-499
Rubies: Southeast Asia 504, **520**
Ruíz Vargas, Guillermo 669, 670, **671**
Rum Cay, Bahamas 375
Rupp, Craig **313**
Rushmore, Mount, S. Dak. **341**
Russell, Cay 374
Russian colonialism: Pribilof Islands 538, 539, 550, enslavement of Aleuts 538, 539, 550
Russian Orthodox Church: Pribilof Islands, Alaska 550, **551**, 552
Rutgers University: Cuello site, Belize, excavation support 129
Ryerson, Ned **81**, 82

S

Sabang, Indonesia 23
Sack race: Alaska **541**
Sacrifice, eagle: Hopi Indians 626, **626, 627**, 628-629
Sagamore Hill, Oyster Bay, Long Island 347, **351, 356, 357, 359**, 362
Sahara (desert), Africa 704, 718; Siroccos 703, 719
Sailing: Bahamas 366, 374, **376-377, 384-385**; Melville Bell Grosvenor 270, 275, **277**, 278
Sailing ships: ***In the Wake of Sindbad***. By Tim Severin. July, 2-41; ***The Lost Fleet of Kublai Khan***. By Torao Mozai. Nov., 634-649
St. Antönien, Switzerland: Avalanche barriers 297, **302-303**
St. George (island), Alaska 536, **536**, 541, 543, 548, 550, 552; Seal roundup **544-545**
St. Helens, Mount, Wash. 310, 325; Compared to El Chichón 655, 661, 672, 673, diagram **672**
St. Joe Paper Company, Port St. Joe, Fla.: Paper mill **213**
St. Johns River, Fla. 172, 210; Headwater area drained 174
St. Margarets Bay, Canada: ***Plight of the Bluefin Tuna***. By Michael J. A. Butler. Aug., 220-239
St. Mark's Square, Venice, Italy: Floods **696-697**, 723
St. Michael's Cave, Rock of Gibraltar 737
St. Paul (island), Alaska: ***New Day for Alaska's Pribilof Islanders***. By Susan Hackley Johnson. Oct., 536-552
St. Peter and St. Paul, Church of, St. Paul (island), Alaska **551**
St. Petersburg, Fla. **204-205**, 211; Retirees **173**, 217
Saint-Tropez, France 730, **730-731**
Salazar, Mike **336**
Salem, N. H.: Computer industry **785**
Salmon (ruins), N. Mex. 579, 582, 585
Salt: Jenne, Mali 414; Jenne-jeno (site), Mali 405, 414; Mediterranean Sea 703, 704, 705, 712, 724-725, 726; Thailand **522**; Volcano ejecta 673
Salto del Guairá, Paraguay: Shop **252**
Salvage archaeology 1; ***The Lost Fleet of Kublai Khan***. By Torao Mozai. Nov., 634-649
Samos (island), Greece: Docks **708-709**; Geodynamics 705; Paleontology **704**, 705, 706
San Cristobal (ruins), N. Mex. 577
San Cristóbal de las Casas, Mexico **654-655, 664-665**, 669, 684
San Francisco Bay and region, Calif. 459, **464-465**, 467, 473, map 464
San Francisco Peaks, Ariz. 612, 618, 619, 628
San Gabriel Canyon, Calif.: Bathers **338**
San Ildefonso Pueblo, N. Mex.: Pottery **596, 597, 598, 604**
San Jose, Calif. 459, 465, 466, 470; Refugee center **466**
San Juan River, Colo.-N. Mex.-Utah 579, 585
San-Pédro, Ivory Coast: Port **121**; Warehouse **120**
San Salvador (island), Bahamas 371, 378
Sand dunes: Deir el-Balah (site), Gaza Strip 743, **744-745**, 746, **747**, 753, **756-757, 763**
Sanders, Jerry **463**, 467-468, 476
Sandhill cranes in flight **86-87**
Sandia Canyon, N. Mex.: Cave **579**
Sant' Angelo dei Lombardi, Italy: Earthquake victim **716**
Santa Ana winds 328
Santa Clara, Calif.: Electronics industry "tilt-ups" **460-461**
Santa Clara County, Calif.: ***California's Silicon Valley***. By Moira Johnston. Oct., 459-477
Santa Clara Pueblo, N. Mex.: Pot-

tery **596, 597, 598, 605**
Santa Fe, N. Mex. 89; Cathedral 89, 91; Chapel near **92**
Santa Fe Community College Teaching Zoo, Gainesville, Fla.: Dusky seaside sparrows 200
Santería (voodoo sect): Miami, Fla. 193
Santorini (island), Greece **706-707,** 707
Sao, Be 411, 413
Sapawe (ruins), N. Mex. 592
Sapphira and the Slave Girl (Cather) 74, 75
Sapphires: Thailand 512, 520
Sardinia (island), Italy: Formation 704, 709, 710, diagram **710-711**
Sargeant, Kit **588,** 592
sashimi (raw fish) 223, 226, **238-239**
Satellite imaging: El Chichón eruption **662-663,** 672, **672,** 673; Mediterranean Sea **702-703**
Saving Père David's Deer. By Larry Kohl. Oct., 478-485
Sawtooth Range, Idaho: Cattle grazing 332-333
Sawyer family: Bahamas 374
Scalping, symbolic: Hopi wedding practice **620**
Scapegoat Wilderness, Mont. 311
Schleiss, Fred and Walter 297
Sculpture: Clay 599, **599,** cover; Marble 44, 45, 48, **54,** 55, 58, **58,** contest **52, 53,** "hyper realism" **42-43,** 44, **44, 45,** 58; Models **43,** 44, 58, maquettes 48; Tools 44, **52,** 58
Sea-lion hunting: Pribilof Islands, Alaska **540,** 552
Seabirds: Pribilof Islands, Alaska 547, **546, 547,** 552
Seabrook, N. H. 778, 780, **780-781,** 783; Nuclear power plant 778, 779, **780-781,** 783
Seafloors: Charting 821, 823, 824; *The Historic Mediterranean; The Mediterranean Seafloor.* Dec. supplement
Seal, bronze: Mongol **640,** 648; *see also* Stamps
Seal stix (aphrodisiac) 538, 552
Sealing: Alaska 536, 538, 544, 550, 552; Ban 538, 539, 544; Slaughter method 538, 539, 544, **545;** Treaty 419, 538-539, 543, 544
Seals *see* Fur seals
Seccombe, Dana 425, 429, 432
Second Mesa, Ariz. 611, 613, **618-619**
Sedimentation: Mediterranean region 697, 706, 722, 726, 727-729
Seeking the Earliest Maya. By Norman Hammond. July, 126-140
"sékés" (beneficent spirits) 110, 111, 118, 119
Self-mutilation: Abidji **110-111,** 118-119; Maya 130, 135
Selkirk Mountains, Canada: Avalanche control 295, 297
Sello, Harry 468, 476
Semiconductor technology: ***California's Silicon Valley.*** By Moira Johnston. Oct., 459-477; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457
Senator Hotel, Miami Beach, Fla.: Art deco window **206**
Sénoufos (people) 104-105, 108; Village **98-99**
Sepik River, Papua New Guinea 165; Villages along 147, 165-166
Sequoias, giant 345, 354, 357-358
Serapis, Temple of, Pozzuoli, Italy: Ruins **720-721**
Seravezza, Italy 44, 55
Sesame Place (educational play park), Philadelphia, Pa.: Computer learning **440**
Set nets 224, 228, 233, 239
Severin, Tim 5, **22, 34, 38;** ***In the Wake of Sindbad.*** July, 2-41
Sewall, Bill **349**
Sex shops: Thailand 500, 504
Seymour, Tryntje 88
Shaker community: Canterbury, N. H. 795, eldresses **794**
Shan (people): Thailand: Opium trade 523
Shanby (*Sohar* cook) 14, 15
"Shark Lady" *see* Patience, Gloria
Shark Reef, Bahamas **390-391**
Sharks 386; Catching 13, 22-23, **27;** Filming **390-391**
Sheep raising: Overgrazing 333
Shelley, Percy Bysshe: Quoted 713, 715, 717
Shepardson, Dave **793**
Sherman, William Tecumseh: Quoted 218
Shigo, Alex L. 325, 332
Shigometer 332
Shinn, Brett and Karen **197**
Ship sewing: Arab ships in Middle Ages 6, 12; Present-day craft 4, 12, 13
Shipbuilding: Handcrafting *see Sohar*
Shipolovi, Ariz. 613, **614-615, 618-619**
Ships *see* Sailing ships
Shipwrecks: ***The Lost Fleet of Kublai Khan.*** By Torao Mozai. Nov., 634-649
Shipwrights, Arab 4, 6, 11, 12
Shockley, William 419, 468, 471
Shockley Semiconductor Laboratory 468, 471
Shongopovi, Ariz. 607, 623, 626, 628
Shooting range: Dade County, Fla. **197**
Shuffleboard Hall of Fame, St. Petersburg, Fla. 217
Siam 491, 507, 514 *see also* Thailand
Sicily (island), Italy: Food **733, 735;** Formation 709, 710, diagram showing **710-711;** Volcano *see* Etna, Mount
Sierra Club 334, 539, 544
Silicon technology: ***California's Silicon Valley.*** By Moira Johnston. Oct., 459-477; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457
Silicon Valley (industrial district), Calif. 419, 434; ***California's Silicon Valley.*** By Moira Johnston. Oct., 459-477; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457
Silk: Thailand 496, 497, 504, 528, 535
Siltec 471
Silviculture 316, 317, 319, 321, 324, 327, 792
Simbana River, Umboi (island), Papua New Guinea 150
Simon, Herbert A. 446, **451**
Simon Bolivar (ship) **782-783**
Sinai Peninsula, Egypt 704; Exodus route theory 739, 740, 742, 763
Sindbad the Sailor: ***In the Wake of Sindbad.*** By Tim Severin. July, 2-41
Singapore: *Sohar* landfall 29, **31**
Sinkhole: Florida 174, **214-215**
Sipapus **584,** 586, 603; Pottery **602, 603**
Sirikit, Queen (Thailand): ***Thailand's Working Royalty.*** Photos by John Everingham. Oct., 486-499
Sirindhorn, Maha Chakri, Princess (Thailand) **489,** 498, **499;** Poem by 498
Siuslaw National Forest, Oreg.: Herbicide spraying 333
Skating rinks: Ivory Coast **115,** 124; Whitefield, N. H. **796-797**
Skeletons, animal 753; Ancient mammals **704,** 705, 706
Skeletons, human: Anasazi 568, 582; Cuello site, Belize 128, **131,** 135, 137, 138; Deir el-Balah site, Gaza Strip 748, **749,** 752, 757; Herculaneum, Italy **686,** 687, **688, 691, 693,** 820, **820,** 821
Ski patrols **298-299,** 305
Ski resorts: ***Avalanche!*** By David Cupp. Sept., 280-305; Beaver Creek, Colo. **336-337;** New Hampshire 793-794, 799; San Francisco Peaks, Ariz. 618
Skipjack tuna **222,** 223
Skouriotissa mine: Cyprus 718
Skover, Jeff 287, 288, 289
Skulls, human: Cuello site, Belize 128, **129, 131,** 135; Deir el-Balah site, Gaza Strip **749,** 752, 757; Herculaneum, Italy **688**
Smith, Jake 287, 288, 289
Smith, Mary Griswold **276**
Smithsonian Institution, Washington, D. C.: Deer herd 485
Smokey Bear 319, 332; Shoulder patch **332**
Smokey Bear State Historical Park, Capitan, N. Mex. 332
Smuggling: Bahamas 375, 377, airplane crash 372-373, **372-373;** Electronics-industry equipment 448; Florida 185, 191, 192, Haitian refugees 189, 192; Paraguay 242, 253, 254, 258; Southeast Asia 504, 519, 520, 528 *see also*

Golden Triangle
Snake Society, Hopi 607, 622
Snakes: Hopi dance 622
Snow: ***Avalanche!*** By David Cupp. Sept., 280-305; Ice cream 718, 719, 732
Snow bridges, steel: Switzerland **300-303**
Snowbird (ski resort), Utah: Avalanche control 305
Snowpack: Diagram **294**
Soccer: Thailand **505**
Sod houses: Nebraska 75
Sofaer, Anna 581, 585
Softball game: St. Petersburg, Fla. **173**
Software: Defined 436; Market 436, 463, 466-467, 468, 469, 476
Sohar, Oman: Sindbad tradition 7, 12, 13
Sohar (boom): ***In the Wake of Sindbad.*** By Tim Severin. July, 2-41
Somare, Michael 158, 170-171
Somchai Hiranyakit 527-528
Somchart Sawangnetr 507, 512
Somoza, Anastasio: Assassination 258, 269
The Song of the Lark (Cather) 75, 85, 88
Songkhla, Thailand 528
Sonoprobe: Underwater archaeology 639, 640
Soto Pineda, Salvador 667, 679
Soule, Gertrude **794**
Sousse, Tunisia: Mosaic **734**
South, Ken **422**
South America: Drug smuggling 375; *see also* Paraguay; Peru
South China Sea: Monsoon winds 29; Pirates 30, 35; *Sohar* voyage 29-30, **31-35;** Squalls 2, 13, 29-30, **32, 33**
South Dakota: Mount Rushmore **341**
Southeast Asia *see* Golden Triangle; Thailand
Southwest, U. S. 631, 632; ***The Anasazi—Riddles in the Ruins.*** By Thomas Y. Canby. Nov., 554-592; ***The Country of Willa Cather.*** By William Howarth. July, 71-93; ***Inside the Sacred Hopi Homeland.*** By Jake Page. Nov., 607-629; ***Pueblo Pottery: 2,000 Years of Artistry.*** By David L. Arnold. Nov., 593-605; *The Southwest,* The Making of America series. Nov. map supplement
Space shuttles: ***Heat Paints*** **Columbia's** ***Portrait.*** By Cliff Tarpy. Nov., 650-653; Launch **180;** Reusability 180
Space suit, mock-up **180**
Spain 736; Cave drawing of tuna 223; Festival **698-699;** Fishing industry 228, 235, 239; Geodynamics 701, 704; Population 730; Tourism 699, 730
Spanish explorers: Bahamas 370, 371, 373, 375, 377, 378; Paraguay 242; Southwest, U. S. 592, 619, 623, 630, 631, 633, depicted in Navajo rock painting **72**
Spanish Wells (island), Bahamas 370, 378
Sparrows: Dusky seaside sparrows 200
Spider clan: Hopi 628
Spindle whorls: Maya sites 137
Spinning bowls: Deir el-Balah (site), Gaza Strip **762, 763**
Spiny lobsters: Bahamas 378, 386, 388, 394
Spirit houses: Thailand 518, 534
Spirits, belief in: Ivory Coast 106, 109, 110-111, 112, 118-119, 123; Papua New Guinea 156, 166; Thailand 518, 534; *see also* Hopi
Splitter wedges (avalanche barriers): Switzerland 297, **303**
Sportfishing: Bahamas 370, 386; Bluefin tuna 223, 231, sale of catch 232-233, world's record catches 223; Florida 175, **176**
Springboks: Lion predation 802, **812-813**
Squalls: South China Sea 2, 13, 29-30, **32, 33**
Squam Lake, N. H. 784
Squaw Valley, Calif.: Avalanche-control team **298-299**
Sri Lanka **20;** Elephants 18, 20; Gems 18, 20, mining of **18,** 20, trade in 20; Islam 18, 20; *peraheras* (parades) **19,** 20; Sindbad tradition 13, 18, 20; *Sohar* landfall 13; Trade, medieval 11
Srinagarind Dam, Mae Klong River, Thailand 531
Stamps (marking devices): Cuello site, Belize **135;** Jenne, Mali **409;** *see also* Seal, bronze
Stanford Linear Accelerator Center, Stanford University, Calif. **477**
Stanford University, Calif. 451, 468, 476; Biomedical design, microelectronics **423**
Stanley Lake, Idaho 332
Star Island, N. H. 783
Star Mountains, Papua New Guinea: Gold and copper mining 170
Star of the Snow (sacred place), Peru: ***Peru's Pilgrimage to the Sky.*** By Robert Randall. July, 60-69
Statuario marble 55, 58
Statues: Buddhist **646;** Lava 713, **714;** Marble 44, 48, **53, 54,** 55, 58, **58, 723**
Statuettes: Ivory Coast **125;** Jenne-jeno (site), Mali **398,** 402, 407, 411, **415, 418**
Stein, John 582, 585
Stella Maris Estate, Long Island, Bahamas 386
Stepetin, Gabriel 543, 548, 550
Stephen, Mount, Canada **296**
Stevens Pass, Wash.: Avalanche 295
Stewart, B. Anthony **276**
Stilt dancers: Ivory Coast 112, **113**
Stirrups, iron: Mongol **647**
Stoker, Karol **399, 403,** 417
Stone Age: Rock of Gibraltar 701
Stonecutting: Granite 55; Marble 48, **49, 50-51,** 52, 55, 56
Stoneware: Mongol 638, 644, **647**
Storms: Indian Ocean 23; ***The Lost Fleet of Kublai Khan.*** By Torao Mozai. Nov., 634-649; Mediterranean Sea **702-703,** 719, 722; Mount Washington, N. H. 790-791, 794-795, 799; South China Sea 29, 30, **32-33**
"Storyteller" (figurine): Cochiti Pueblo, N. Mex. 599, **599,** cover
Strandberg, Don: Home **474**
Stratovolcanoes 673
Straw weavers: Bahamas 386, 388, **388**
Stroessner, Alfredo 240, 241, **241,** 256, **256,** 268-269; Economic progress in Paraguay 244, 268-269; Family and personal life 244, 250, 251; Public appearances and campaigning 240, 251, **257**
Stromboli (volcanic island), Italy **694-695,** 709
Submarine test facility: Bahamas 370, 388-389
Submarines: Portsmouth, N. H. 784
Submersibles: *Alvin* 821, **823**
Submicron structure research 443
Subsidence: Bangkok 512; Venice 696-697, 722; *see also* Sinkhole
Sukhothai, Siam 507, 514, 534
Sulfuric acid pollution: Toiyabe National Forest, Nev. **309**
Sumatra, Indonesia: Cannibalism 23; Sindbad tradition 13, 23, 29; *Sohar* landfall 13, 23
Sun clan: Hopi 607
"Sun dagger" **580-581,** 585
Sun deity: Hopi 619, 624, 628
Sun Point, Mesa Verde National Park, Colo. 588
Sun River elk range, Mont.: Gas and oil prospecting 311
Sun Temple, Mesa Verde National Park, Colo. 589
Sunnyvale, Calif.: Fruit growing 472, **473;** Industrialization 471
Supercomputers 425, 441, 443, 444
Supermarkets, French: Ivory Coast **102,** 108
Sur, Oman **8-9;** *Sohar* construction **4-5,** 12-13, launching 8, 12, 13
Surgery, open-heart: Ivory Coast **118**
Survival training **197**
sushi (raw fish and rice) 223, **239**
Swan, George **312**
Swiss Institute for Snow and Avalanche Research 302-303
Switsur, Roy 129
Switzerland: ***Avalanche! Battling the Juggernaut.*** By David Cupp. Sept., 290-305
Syncretism: ***Peru's Pilgrimage to the Sky.*** By Robert Randall. July, 60-69
Synertek, Inc. 473; Microprocessor **427**

Syrian immigrants: Ivory Coast 101

T

T-38 (jet) **653**; Thermogram **653**
T. R.'s Wilderness Legacy. By John L. Eliot. Sept., 340-363
Tabasco (state), Mexico 666; El Chichón eruption 678-679, **682-683**
Tafoya, Margaret **605**
Taft, William Howard: Alaska coal lands controversy 324-325
Tahoe, Lake, Calif.-Nev.: Resort near *see* Alpine Meadows
Taï National Park, Ivory Coast 115, 117
Tak (province), Thailand 531
Takashima (island), Japan 636, 638, 644, 648; Mongol invasion artifacts **638-640**, 640, 644, 646, 648
Tambora (volcano), Indonesia: Eruption 675
Tamiami Trail, Fla.: Signs along **202**
Tampa, Fla.: Cigar-making industry 211, **213**, 217; Latin heritage 217; Mansion **206**; Port 217
Tanadgusix (native-owned corporation), St. Paul (island), Alaska 536, 538, 552
Tangier, Morocco: Street hustlers 736
Taos Pueblo, N. Mex. 89, 589, 592
Targhee National Forest, Idaho: Geothermal drilling 313
Tari, Papua New Guinea **151**
Tarpy, Cliff: ***Heat Paints* Columbia's *Portrait.*** Nov., 650-653
Tavistock, Lord 480, 485, **485**
Taylor, Meg **156, 157**
Teak wood: India bans export 11; Thailand harvest **520-521**
Technology: ***California's Silicon Valley.*** By Moira Johnston. Oct., 459-477; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457
"teddy bear" **359**
Teddy Roosevelt's Wilderness Legacy. By John L. Eliot. Sept., 340-363
Te'ewi (Anasazi ruins), N. Mex. 592
Tekamaki (bluefin tuna and rice wrapped in seaweed) **239**
Tekong Besar Island, South China Sea: Women **28**
Tel Aviv, Israel: Pollution control 727
Teleterminal: Bell Telephone Laboratories 454-455
Television, two-way 456
Television films, NGS: Emmys 275; 1983 series announced: "Australia's Animal Mysteries" (Feb. 1983), "Born of Fire" (Apr. 1983), "Rain Forest" (Jan. 1983), "Save the Panda" (Mar. 1983) 824
Temperature pictures *see* Thermal imagery
Temples: Thailand **499, 500-501, 509,** 512, 518, dancers 504, **508**
Terra cotta statuettes: Jenne-jeno (site), Mali **398,** 402, 407, 411, **415, 418**
Tesuque, N. Mex. 91
Texas Instruments 429, 471, 473
Texas longhorn cattle 350
Textile mill, one of world's largest: New Hampshire 775, 785
Thai Border Patrol Police 504, 507, 523
Thai Red Cross Society 496
Thailand 419; ***Thailand: Luck of a Land in the Middle.*** By Bart McDowell. Oct., 500-535; ***Thailand's Working Royalty.*** Photos by John Everingham. Oct., 486-499
Agriculture 504, 518, 526 *see also* Rice industry, *below*
Capital *see* Bangkok
Crime 507, 512, 529 *see also* Golden Triangle
Dancers, classical **508, 514-515**
Energy 504, 506, 507, 520, 530, 531, 534; Imported 506, 520, 530-531
Ethnic diversity 506, 507, 516-517, 523, 526, 527, 532, **532, 533,** map showing 506
Facts and figures 507
Flag **492, 507**
Foreign relations 491, 496, 498, 500, 503, 507
Forests **520-521,** denuded 504, 519, threatened 504, 521, 524
Government 506, 507, 510; Constitutional monarchy 486, 490, 512, 514; Head of State *see* Bhumibol Adulyadej, King; Prime Minister 507; Public graft 504; *see also* Foreign relations, *above;* Military, *below*
Guerrillas 504, 527; Communist 493, 495, 504, 528, 529-530, 531; Muslim 495, 528, 529
Handicrafts 496, 497, 504, 528, 534-535
History 490-491, 507, 519, 529 *see also* Siam
Map 506
Military 490, **492, 493,** 494, 496-497, **498,** 504, 507, 512, 519, **531;** Leader 512
Opium 493, 494-495, 506, 523, 526, 527, **532;** Crop substitution program 493, 495, 506, 523, 526-527, 532; Heroin 504, 507
Population 486, 500, 507
Refugees 496, 504, 507, 528, **530-531;** Camps 518, 519, 522, **530-531,** map locating 506; Number of 506, 507
Religions 494, 495, 507, 508, 515, 528, 529, 534 *see also* Buddhism
Rice industry 504, 506, 507, 512, 518, 523, 524, **524-525**
Royal family: History 490-492, 494, 507, 512; National visits 486, 493, 495; Succession, uncertain 496-498; Traditions 486, **486-487, 488-489,** 490, 492
Tourism 506, 507, 527-528; Annual income 504, 506
Water projects 493, 506, 518, 524
Thailand, Gulf of 512; Gas pipeline 504, 506, 531; Pirates 528
Theodore Roosevelt National Park, N. Dak. 344, 347, **348, 361**
Thera (island), Greece **706-707,** 707; Volcanic eruption 707
Theravada Buddhism: Thailand 490, 507, 514
Thermal imagery: El Chichón's eruption **662-663;** ***Heat Paints* Columbia's *Portrait.*** By Cliff Tarpy. Nov., 650-653
Thermograms: *Columbia* space shuttle **650-653;** Mediterranean Sea **702**
Thinking computers, Japanese 445 *see also* Artificial intelligence
Third Mesa, Ariz. 611
Thomas J. Watson Research Center, Yorktown Heights, N. Y. **426-427, 429**
Thompson, Tim 538, photographer: ***New Day for Alaska's Pribilof Islanders.*** Oct., 536-552
The Thousand and One Nights (The Arabian Nights Entertainments) 6, 18; Illustrations from **11, 21, 29;** 1932 edition cover **2**
Thumb: Sculpture of 44, **44, 45,** 48
Thunder Basin National Grassland, Wyo.: Coal study **325**
Tikal (site), Guatemala: Hieroglyphs 134; Stela 135
Tilling, Robert I.: ***Volcanic Cloud May Alter Earth's Climate.*** Nov., 672-675
Tillotson, Neil **779**
Timber industry: Ivory Coast 101, 114, 117-118, **121;** Papua New Guinea 149, 165; United States: ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339
Timbuktu, Mali: Commerce 414, 416
Tin: Thailand 507, 528
tiradores (leather chaps) **262-263**
Toba-Maskoy Indians: Paraguay 264, **264-265,** 265, 268
Tobacco: Florida 212, warehouse **212-213**
Toiyabe National Forest, Nev.: Water pollution **309**
Tonga: Coronation of King **275,** 278
Tongass National Forest, Alaska **318, 334-335,** 335, 358; Molybdenum deposit 335, 339
Tongue of the Ocean, Bahamas: Submarine facility 370, 388-389
Tonto National Forest, Ariz.: Grazing permits 313
Toon, Brian 673, 675

Totemism: Hopi clans 607, 612, 613, 623, 626, 628
Tower Kiva, Salmon (ruins), N. Mex. 582
Town meetings: New Hampshire **772,** 773
Townsend, Lloyd K., artist: ***Lost Outpost of the Egyptian Empire.*** Dec., 739-769
Toys: Jenne, Mali **410;** Jenne-jeno (site), Mali 407, **411,** 413
Trade routes: Maya 133; Medieval: ***In the Wake of Sindbad.*** By Tim Severin. July, 2-41
Trairong Suwankiri **505**
Transceiver: Avalanche-rescue device 303, 304
Transistors: Defined 425, 426, 439; Diagrams **426-427, 443;** Early model 429, **443;** Electric-current control 421, 426, 429, 434, 443, **443;** Integration, range of (chip components) 421, 429, 430, VLSI (Very large-scale integration) 425, 429, 433, 439, 444; Inventors of 419, 429, 443, 468, 471; Sizes, comparative 426, 429, 443, **443;** Structuring of 426, **426-427,** 434
Traoré, Baba and Dani 408
Traoré, Moussa 114
Trap fishing 224, 228, 233, 239
Treasure Cay resort, Great Abaco (island), Bahamas 374, **384-385**
Tree-ring dating **327,** 332, 563, 565, 570, 588
Trees: Seed cones 322; Wood decay 325, 332; *see also* National forests; Teak
Treichville, Ivory Coast: Hospital 118, surgery **118;** Open-air bar **104-105**
Tribal Council, Hopi 618, 623, 624, 625, 626
Trieste, Italy: Bora wind 722
Trinidad (colonial ruins), Paraguay **244,** 250
Troy, site of, Turkey: Sedimentation 727
Tsegi Canyon, Ariz. 589
Tsukiji Market, Tokyo, Japan: Bluefin tuna sales 220, 222, **226,** 232
Tsunamis 707
Tuckerman Ravine: Mount Washington, N. H. 794
Tularosa, N. Mex.: Pottery **595,** 598
Tuna: Cave painting of 223; Commercial species **222,** 223; Fishing industry 223, 226, catch value 223, species sought **222,** 223, world catch 226; Ranching *see* Janel Fisheries; *see also* Bluefin tuna, *outlined*
Tunisia: Island 727; Market **735;** Mosaic **734;** Satellite image **702-703;** Tourism 730
Turkey: Avalanche victims 290; Geodynamics 705, 710, diagram **710-711;** *see also* Istanbul
Turquoise: Pueblo pottery **597**
Tuscany (region), Italy *see* Carrara
Tuxtla Gutiérrez, Mexico: Refugee shelter 669, 676
Twain, Mark: Medal honoring **75**
Two Egg, Fla. 201, 209
Typhoons: ***The Lost Fleet of Kublai Khan.*** By Torao Mozai. Nov., 634-649

U

Ubol Ratana, Princess (Thailand) 496
Udon Thani, Thailand: U. S. air base 529
Ueyanagi, Shoji 239
Umboi (island), Papua New Guinea 150
Unearthing the Oldest Known Maya. By Norman Hammond. July, 126-140
UNESCO: Aid to Thailand 514; Convention against art thieves 418; Seafloor charting 821; World biosphere reserve designated 115
UNICEF: Food for refugees 519, 530
Union of Soviet Socialist Republics: Sealing treaty 538, 544
United Nations: Mediterranean Action Plan 727; Thai opium problem 523, 526, 532; *see also* UNESCO; UNICEF
United States: Aboriginal claims and settlements, Pribilof Islands 539, 548; *America's Federal Lands; The United States.* Sept. supplement; ***Avalanche!*** By David Cupp. Sept., 280-305; ***The Chip: Electronic Mini-marvel.*** By Allen A. Boraiko. Oct., 421-457; Drugs, illegal 172, 175, 183, 185, 191, 192, 377, war against 185, 191, 192, 211, 373, 375; Food-export ranking 504; Foreign relations with Thailand 503, 504, 507, 526, 532; ***The Making of America—17 New Maps Tie the Nation to Its Past.*** By Wilbur E. Garrett. Nov., 630-633; Mercury content regulations for foods 225, 227; Oldest continuously-inhabited town 610, 612; Oldest permanent structures found in West 1; ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339; ***Roosevelt Country: T. R.'s Wilderness Legacy.*** By John L. Eliot. Sept., 340-363; Sealing treaty 419, 538, 544; Tuna fishing 223, 227, 232; *see also* Florida; New Hampshire; Southwest, U. S.; *and* Space shuttles
U. S. air bases: Thailand 503, 529
U. S. Army: Corps of Engineers' reclamation of Florida beach 203; Navajo raids 610
United States Border Patrol: Roadblock 211
U. S. Bureau of Land Management (BLM) 582, 585
U. S. Coast Guard: Cubans rescued 185; Haiti patrols 189, 192; Loran tower, St. Paul (island), Alaska **543**
U. S. Department of Agriculture: Assistant Secretary 316, **319;** Transfer Act 324; *see also* U. S. Forest Service
U. S. Department of the Interior: General Land Office 324; Resettlement of Navajos 625; Secretary of the Interior 310-311
U. S. Forest Products Laboratory, Madison, Wis. **316, 317,** 325
U. S. Forest Service 279, 310, 319, 333, 346; Avalanche forecast centers 304; Fire fighting 324, **330-331;** First chief of *see* Pinchot, Gifford; Lawsuits against 333, 334-335; Permit for ski lift construction 618; Reforestation **326;** Research 312, 325, 332; Sustained-yield policy 316-317
United States-Japanese trade war: Electronics industry 433, 440-441, 459, 463, 473, 476
U. S. Mint: Medals **75**
U. S. National Marine Fisheries Service: Pribilof Islands, Alaska 538, 539
U. S. Naval Research Laboratory, Washington, D. C. 443, 446
U. S. Navy 783, 784; Pilot training **197,** 209; Submarines 784, test facility 370, 388-389
U. S. 1 (highway): Roadblock 211; Southern terminus 210
U. S. parks *see* National parks
U. S. Quartz **468**
U. S. Reclamation Service 340, 346, 351
U. S. servicemen: Thailand **518,** 528
U. S. Treasury Department: Customs Service office: Miami, Fla. 185
U. S. Windpower, Inc. 778
University of Abidjan, Ivory Coast: Physicians 118
University of California at Los Angeles: Radiocarbon dating 128, 129
University of Florida, Gainesville: Frozen orange juice concentrate process pioneered 211
University of Languedoc, France: Bluefin tuna conference 238
University of Montana, Missoula: School of Forestry 313, 321
University of Nebraska, Lincoln 71, 82, 85; 1872 **84**
University of New Mexico: Graduate students 588
University of Papua New Guinea: Students 143
University of Pittsburgh: Artificial-intelligence research 446
University of Technology, Lae, Papua New Guinea: Student 155
University of Utah: Biomedical design center **422;** Microelec-

tronic devices **422**
Urns, funerary: Bobo people 411; Jenne-jeno (site), Mali **396-397,** 407, 411, cutaway diagram **406**
Use and Abuse of Our National Forests. By Rowe Findley. Sept., 306-339
Utah: Anasazi sites 563; Avalanches **280-281,** 304, control 304-305, victims 290, 304; Cave **573;** *see also* Four Corners Country
Utama (Thai monk) 518
Ute Indians: Raids on Hopis 623

V

VLSI ("very large scale integration") 425, 429, 433, 439, 444
Vacuum tube **443;** Obsolete 429, 443, 468, museum piece **438**
Vajiralongkorn, Maha, Crown Prince (Thailand) **488, 498;** Military studies 496-497, 498
Valencia oranges: Harvest **211**
Van wrapped around a tree **296**
Vancouver, Canada: Police cars, terminal-equipped **453**
Vanderbilt, George Washington 324
Vanni Eigenmann Foundation: Avalanche research 304
Venice, Italy: Flooding **696-697,** 723, causes 696-697, 703, 722, 723; Palace **696-697;** Preservation measures, plans for 697, 723; Tourists **696-697**
Vesuvius, Mount, Italy: Aerial view **689;** Eruptions 687, 690, **690-691,** 692, 713, 717, 721, map showing 721, victim, plaster cast of **716-717**
Video games 441, 450; Arcades 441, juvenile-delinquency question 441, 450, revenue 450; Army training simulators, model for 441, 450; Chips **428,** 450; Programs for 436
Vietnam: Army 500, 507, 519, 522, 530; Communism 507
Vietnam War: Americans in Thailand 503, 518, 528-529
Vietnamese boat people 528; Piracy victims 30, 35; *Sohar* encounter 13, 30, **34-35,** 38
Vietnamese refugees 506, 528; Escape from Vietnam (1975) 470; Silicon Valley, Calif. employment 470; *see also* Vietnamese boat people
Villahermosa, Mexico: Population 669; Refugee center 669, 670, 676
Virgin Islands: Test dive of research submersible *Alvin* 821
Virginia 74; T. R. Roosevelt's cottage 347, 351
Vivian, Gwinn 578, 582, 585
Volcanic ash: Soil enrichment 679
Volcanic Cloud May Alter Earth's Weather. By Robert I. Tilling. Nov., 672-675
Volcanic eruption prediction 821, 824
Volcanic gases 656, 661, 669, 673; Study of 821
Volcanic rock: Skeletons embedded in **686,** 687, **688, 691,** 692, **693, 820**
Volcanoes 704, 706-707, 709, 710; El Chichón: ***The Disaster of El Chichón.*** By Boris Weintraub. Nov., 654-684; Etna 704, 712-713, **714-715;** Katmai 662, 673, 675; Krakatoa 707; Lipari 709, 717; Phlegraean Fields 713, 736, map 721; St. Helens 661, 672, 673; Stromboli **694-695,** 709; Tambora 675; Thera 707; Vesuvius 687, 690, 692, 713, 717, map 721; Vulcano 709, 712, **718-719**
Voodoo sect: Miami, Fla. 193
Vosburgh, Frederick G. 270, 276
Vulcan 704
Vulcano (island), Lipari Islands, Italy: Eruption, most recent 709, 718; Mud bath 709, 712, **718-719**

W

WQED/Pittsburgh, coproducer of NGS television series 824
Wabia, Papua New Guinea: Villagers 169, **169**
Walnut Canyon National Monument, Ariz. 85, 88
Walnuts: Turkey **732**
Walt Disney World, Orlando, Fla. 179, 217; Epcot Center **178-179,** 217
Waria, Maria **159**
Warlords: Southeast Asia: Armies 507, 523
Wasatch Range, Utah: Avalanche **280-281,** 304
Washington (state): Avalanche 295; National forests 310, 325, 358
Washington, D. C. 319, 332, 362, 443, 446
Washington, N. H. **770-771**
Washington, Mount, N. H. 310, **790-791,** 792, 794, 795
Washington Post (newspaper): Electronic edition 454
Wat Ratchabophit (chapel), Thailand 518
Wat Trimit (temple), Bangkok, Thailand 512
Water pollution: California 470; Mediterranean Sea 695, 704, 715, 721, 726-727, 735; Nevada **309**
Water resources: ***Paraguay, Paradox of South America.*** By Gordon Young. Aug., 240-269
Water skiing: Florida to Cuba 211
Waterfalls: Guairá Falls, Brazil-Paraguay 244, **246**
Watt, James G. 1, 310-311
Ways of Horus (ancient route from Egypt to Canaan) 742, 760, 762, 763; Fortresses along 742, 760, 763; Map 742-743
Weather: ***The Mediterranean—Sea of Man's Fate.*** By Rick Gore. Dec., 694-737; Mount Washington, N. H. 790-791, 794-795, 799; ***Volcanic Cloud May Alter Earth's Climate.*** By Robert I. Tilling. Nov., 672-675
Webster County, Nebr. 81; Dane Church **76**
Weintraub, Boris **677;** ***The Disaster of El Chichón.*** Nov., 660-684
Welders, robot: Automotive assembly 451, **454-455**
Wendelin, Rudolph 332
Wengen, Switzerland: Avalanche snow bridges **300-301**
Wès (people) 100, 108; Masks **112,** 123-124; Panther-man ritual 100, **109**
West (region), U. S.: Energy reserves 563, 567, 582; *America's Federal Lands; The United States.* Sept. supplement; ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339
West Africa: ***Finding West Africa's Oldest City*** (Jenne-jeno, Mali). By Susan and Roderick McIntosh. Sept., 396-418; *see also* Ivory Coast
West Indies *see* Bahama Islands
West Palm Beach, Fla. **208-209**
West Virginia: National forests 319, 321
Western grebes 354
Western Hemisphere: View from space **662**
Westin, Alan F. 455-456
Wetherill, Richard 88
Whale Cove, Grand Manan Island, Canada: Cather home 91, 93
White House: Curator **274;** Guidebook presentation **244;** Theodore Roosevelt's presidency 362
White Mist (yawl) 270, 276, **277**
White Mountain National Forest, N. H. **306-307,** 339, 789, 792
White Mountains, N. H. **775,** 787, 792, 799
White River National Forest, Colo.: Ski resort **336-337**
Whitefield, N. H. **796-797**
Wichita Mountains National Wildlife Refuge, Okla. 344, 350
Wilburn, Herbert S., Jr. **276**
Wild flowers 75, **77**
Wildebeests: Lion predation 802, **804-805, 806-807**
Wilderness areas: Mineral exploration and leasing 310-311; Oil wells 311, 313; Total acreage in United States 310
Wilderness Society: Mineral potential survey 311
Wildlife: Fur seals 419, 536, 538-539, 542, **544-545,** 552; *see also* Lions; Père David's deer
Wildlife preservation: ***Our National Forests: Problems in Paradise.*** By Rowe Findley. Sept., 306-339; ***Roosevelt Country: T. R.'s***

Wilderness Legacy. By John L. Eliot. Sept., 340-363; *see also* Père David's deer
Wildlife refuges: Ivory Coast 114, 115, 117, **122-123;** United States: *America's Federal Lands; The United States.* Sept. supplement, Theodore Roosevelt established 340, 350, 352; *see also* Bird sanctuaries
Willa Cather: Voice of the Frontier. By William Howarth. July, 71-93
Willa Cather Memorial Prairie, Nebr. 82
Willamette National Forest, Oreg.: Clearcutting **321, 326**
Williams, Tennessee **199**
Willow Shade (farm), Gore, Va. 74
Willow Springs, Mo. 322
Wilson, Sid **312**
Windmill (parade float): Spain **699,** burning **698-699**
Windmills: New Hampshire 778
Windows, hand-painted: Tesuque, N. Mex. **91**
Winds 704, 723, 791, 795; Bora 703, 722, 726; Harmattan 413; Mistral 703, 704, 719, 722, 726; Santa Ana 328; Sirocco 703, 719; *see also* Monsoon winds
Windsor, William J., Jr., family 217
Windsurfer: France **729**
Windy Gap, Colo.: Oldest permanent structures found in the West 1
Wine set, bronze 748, 752, **754**
Wineland, Lawrence 350, 351
Wing, Elizabeth 137-138
Winnipesaukee, Lake, N. H. 784, **786-787, 793**
Winslow, Ariz. 622, 626; Archaeological sites near **560-561,** 589
Winter Park, Fla.: Sinkhole 174, **214-215**
Winter's White Death (avalanche). Sept., 280-281
Wisconsin: Forest fire 329; Forest products research **316, 317,** 325
Wisherd, Edwin L. **276**
Woburn Abbey (estate), England: Père David's deer **478-485,** 479, 480, 485
Wolfie's delicatessen, Miami Beach, Fla. 195
Wood: Electrical resistance 332
Wood carvings: Papua New Guineans **147,** 165-166
Wooden ship *see Sohar*
Woodlawn Park Cemetery, Miami, Fla.: Voodoo objects 193
World War II: Papua New Guinea 164-165, 166, Japanese relics **164;** Thailand 490, 491, 519
World Wildlife Fund: Panda preservation campaign 824; Père David's deer reintroduction into China planned 485
Wozniak, Steve 443, 469
Wyoming: Federal lands 313, 325, 358, **363**

X

Xerox Corporation 441

Y

YACC *see* Young Adult Conservation Corps
Yachts: Under attack in Bahamas 375, 395
Yacyretá (dam), Argentina-Paraguay 250
Yada, Issho, artist: ***The Lost Fleet of Kublai Khan.*** Nov., 634-649
Yala (province), Thailand 495
Yale University: Forestry school 324; Honorary degree recipients 74
Yamoussoukro, Ivory Coast: Presidential palace 114
Yang Seu 523, 526
Yangome, Papua New Guinea: Villagers **168,** 169
Yankee independence: New Hampshire 770, 783
Yawl *see White Mist*
Ybor City, Tampa, Fla.: Cigar-making industry 217
"Year without a summer" (1816) 675
Yeatman, Frank 282, 287, 289
Yellowfin tuna **222,** 223; Artificial breeding 239
Yellowstone National Park, U. S. 313, 342, 344, 346, **363;** Volcanic eruption prediction 824
Yellowtail: Aquaculture 237, 238
Yguazú, Paraguay **260**
Yoho National Park, Canadian Rockies **296**
Yosemite National Park, Calif.: Theodore Roosevelt's visit 345, 354, 357
Young, Gordon: ***Paraguay, Paradox of South America.*** Aug., 240-269
Young Adult Conservation Corps discontinued 339
Ypé Jhú, Paraguay 255, 258
Yucatán Peninsula, Mexico 128; Maya trade routes 133
Yugoslavia: Bora wind 722
Yukon Delta National Wildlife Refuge, Alaska 359, 362
Yungay, Peru: Avalanche victims 295
Yupik Eskimos 359, 362

Z

Zacata, Emilio 263
Zacharof, Mike 538, 539, 552
Zapata Pathfinder (purse seiner) 227
Zebras: Lion predation 802, **806, 818-819**
Zoo: Gainesville, Fla. 206
Zoque Indians 664, 676, **678;** El Chichón effects on 666-667, 678

INDEXING STAFF

JOLENE M. BLOZIS *Editor*
MARTHA K. HIGHTOWER *Assistant Editor*
JEFFREY A. BROWN
GEORGE I. BURNESTON, III
M. KATHLEEN HOGAN
ANNE K. McCAIN
BRIT A. PETERSON
MICHAEL G. YOUNG